RADview-EMS/NGN

Element Management System for NGN Applications

LA-210

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Chapter 1

Introduction

This chapter provides an overview for managing LA-210 using the RADview-EMS/NGN LA-210 management solution. It introduces the graphical user interface. It is assumed that you are familiar with basic RADview-EMS/NGN operations. For more information about basic RADview-EMS/NGN operations, refer to the *RADview-EMS/NGN (PC) or (UNIX) User's Manual*.

This chapter contains the following topics:

- *Overview of LA-210*
- *RV-EMS/NGN LA-210 Overview*
  - *Overview of the RADview FCAPS Model*
  - *System Level Operations*.

1.1 Overview of LA-210

RV-EMS/NGN LA-210 is an advanced DSL Ethernet access device operating at rates of up to 22 Mbps using G.SHDSL.bis EFM bonding technology (TC-PAM 16 or TC-PAM 32 line coding technologies) to transmit data rates of up to 5.7 Mbps over each copper pair with EFM bonding (2-wire line).

RV-EMS/NGN LA-210 supports multiple data rates and works in full duplex mode over 2-wire, 4-wire, or 8-wire lines.

In addition to the EFM mode, RV-EMS/NGN LA-210 operates the SHDSL link in ATM mode to be compatible with the existing DSLAM infrastructure.

EFM bonding ensures that a failure or addition of a link does not drop the traffic being transmitted over the other wires in the group, nor is the capacity of the group decreased when a new link is added at lower rate. This is particularly relevant for operators offering Ethernet services in the First Mile where fiber is absent or impractical to install.

RV-EMS/NGN LA-210 implements the IEEE.1Q standards to provide VLAN-tagging with four levels of prioritization, enabling carriers to offer differentiated Ethernet services. VLAN tagging can also be employed to separate traffic, ensuring transparency of the customer traffic and bolstering security of management traffic.

RV-EMS/NGN LA-210 provides monitoring, control, and diagnostics of local and remote units via a terminal supervisory port.

1.2 RV-EMS/NGN LA-210 Overview

This chapter explains the steps required to get the RADview-EMS/NGN LA-210 management system for LA-210 version 1.5 up and running. It describes the graphical user interface, configurations, security and fault management. Specific tasks possible with RADview-EMS/NGN LA-210 are dealt with in the subsequent chapters in this manual. All the configurations and management support in this manual are tasks that can be performed with RADview.

The RADview-EMS/NGN management system for LA-210 provides you with all the tools necessary to monitor the performance and configure the device parameters for its local and remote devices.

The RADview-EMS/NGN management system for LA-210 units is accessed in two levels:

- System Level
- Port Level:
  - SHDSL
  - 10/100BASE-T

Overview of the RADview FCAPS Model

RADview provides a complete management solution for monitoring and controlling the RV-EMS/NGN LA-210 system. The RADview solutions conform to ITU-T Telecommunication Management Network (TMN) recommendations for SNMP management systems, known as the FCAPS model:

- **Fault management** – detects and correlates fault in network devices, isolates faults, and initiates recovery actions.
- **Configuration management** – tracks configuration changes, and configures, installs, and distributes software and configuration files across the network.
- **Accounting management** – collects accounting data and generates network usage reports.
- **Performance management** – continuously monitors network performance (QoS, CoS) and resource allocation.
- **Security management** – controls and restricts access to network resources.

System Level Operations

Table 1-1 lists the management tasks that are available when you select the entire system.

Table 1-1. Mapping of FCAPS Functions to RADview-EMS/NGN LA-210 Menu Paths and Sections in this Manual

FCAPS Component	Function	Device Level		Port Level	
		Path in RV-EMS/NGN LA-210	Section in this Manual	Path in RV-EMS/NGN LA-210	Section in this Manual
Fault Management		Fault › History Log			
	Clearing the system log buffer	Fault › Clear History Log	Clearing Alarms in the Alarm Buffer - *Chapter 7*		
Configuration Management	Viewing and configuring system information	Configuration › System Info	Configuring System Information - *Chapter 3*		
	Setting system date and time	Configuration › Date & Time	Setting System Date and Time - *Chapter 3*		
	Configuring fault propagation	Configuration › Fault Propagation	Configuring Fault Propagation - *Chapter 3*		
	Configuring flow settings (Bridge mode)	Configuration › Flows	Configuring Flow Settings - *Chapter 3*		
	Configuring bridge settings (Bridge mode)	Configuration › Bridge › Parameters	Configuring Bridge Settings - *Chapter 3*		
		Configuration › Bridge › Ports	Configuring Bridge Settings - *Chapter 3*		
		Configuration › Bridge › VLAN Membership	Configuring Bridge Settings - *Chapter 3*		

FCAPS Component	Function	Device Level		Port Level	
		Path in RV-EMS/NGN LA-210	Section in this Manual	Path in RV-EMS/NGN LA-210	Section in this Manual
		Configuration › Bridge › MAC Table	Configuring Bridge Settings - *Chapter 3*		
	Configuring QoS parameters (Bridge mode)	Configuration › QoS › Classification	Configuring Quality of Service (QoS) - *Chapter 3*		
		Configuration › QoS › Mapping	Configuring Quality of Service (QoS) - *Chapter 3*		
	Configuring QoS parameters (Flow mode)	Configuration › QoS › Ingress BW Profiles	Configuring Quality of Service (QoS) - *Chapter 3*		
		Configuration › QoS › Rate Limitation	Configuring Quality of Service (QoS) - *Chapter 3*		
		Configuration › QoS › CoS Profiles	Configuring Quality of Service (QoS) - *Chapter 3*		
		Configuration › QoS › Marking Profiles	Configuring Quality of Service (QoS) - *Chapter 3*		
		Configuration › QoS › Internal Queue Profiles	Configuring Quality of Service (QoS) - *Chapter 3*		
	Resetting the system hardware	Configuration › Reset › HW	Resetting the System Hardware - *Chapter 3*		
	Resetting system configurations	Configuration › Reset › Config	Resetting System Configuration - *Chapter 3*		

FCAPS Component	Function	Device Level		Port Level	
		Path in RV-EMS/NGN LA-210	**Section in this Manual**	**Path in RV-EMS/NGN LA-210**	**Section in this Manual**
	Polling the Agent	Configuration › Poll Agent	Polling the Agent Configuration - *Chapter 3*		
	Viewing and configuring Ethernet port parameters			Configuration › Parameters	Viewing and Configuring Ethernet Port Parameters - *Chapter 3*
Performance Management	Setting the polling interval for updating statistics in dialog boxes	Statistics › Polling Interval	Setting the Polling Interval - *Chapter 5*		
	Viewing port statistics			Statistics › Rx Frame Types	Port Statistics - *Chapter 5*
				Statistics › Tx Frame Types	Port Statistics - *Chapter 5*
				Statistics › Errors	Port Statistics - *Chapter 5*
				Statistics › Clear Statistics	Port Statistics - *Chapter 5*
Security Management	Viewing and modifying the Host parameters	Options › Host	Configuring Host Parameters - *Chapter 6*		
	Configuring SNMP	Options › Manager List	Configuring SNMP - *Chapter 6*		
	Configuring Management Access	Options › Access	Configuring Management Access - *Chapter 6*		

Chapter 2

Installation and Operation

This chapter explains the installation and operation required to get the RADview-EMS/NGN system for LA-210 up and running. It also describes the RADview-EMS/NGN LA-210 graphic user interface (GUI) and how to select the system and its ports.

This chapter explains how to perform the following tasks:

- *Network Management Options*
- *Pre-configuring LA-210 for Network Management*
  - *Connecting a Terminal to the Control Port*
  - *Configuring the Host Parameters*
  - *Configuring the Management Access*
  - *Adding a Network Management Station (NMS)*
  - *Configuring the SNMP Communities*
- *Connecting LA-210 to Network Management Stations*
  - *Inband Management*
  - *Out-of-Band Management*
- *Launching RV-EMS/NGN LA-210*
- *Using the Graphical User Interface (GUI)*
  - *LA-210 View Window*
    - *Title Bar*
    - *Menu Bar*
    - *Toolbar*
    - *Status Bar*
  - *LA-210 System*
  - *RADview LA-210 Menu Maps*
  - *Selecting the System*
  - *Selecting Ports*
  - *Front Panel Connectors*
  - *Indicators and LEDs*
    - *Port Status Indicators*
    - *LEDs.*

2.1 Network Management Options

LA-210 units have a local management subsystem that controls the operation of all of its circuits. The subsystem supports various management interfaces, including inband and out-of-band SNMP management (for example, RADview), Telnet, and local management via an ASCII terminal or a Web browser. RADview management software is typically used to support large networks.

Some parameters, such as the Operation Mode, CANNOT be changed from within RADview, since they are read only parameters. However, you can use the built-in management menu-driven interface of the LA-210 to configure the operational mode. The configuration menus are accessible from a serial connection to the device control port or using the Telnet protocol via a connection to the Ethernet LAN port. For complete information about managing LA-210 using the terminal, see the LA-210 Installation and Operation Manual.

Note

- *Changing the Operation Mode erases some parameters, such as the Ethernet host IP, and disconnects any remote management sessions.*
- *Changing the Ethernet host IP address disconnects any remote management sessions. For RADview management, you would have to add the new managed element (host) IP address to the EMS or SNMPc map.*

RADview management software is used for managing large networks. RADview uses SNMP messages to manage LA-210 can be managed by a network management station (NMS) via one of the unit's Ethernet ports. The connection can be made either from a local LAN, or from a remote location, via a PSN connected to one of the ETX Ethernet ports.

2.2 Pre-configuring LA-210 for Network Management

LA-210 can be managed by a network management station which is located on the LAN connected to the one of the unit's Ethernet ports.

To remotely administer LA-210 via a Network Management Station (NMS), it is necessary to first configure the basic LA-210 parameters via an ASCII terminal command line interface (CLI) session to the LA-210 Control Port. The following steps are required:

- Connecting a terminal to the control port
- Configuring the host parameters
- Entering device information
- Configuring LA-210 communities
- Configuring the host encapsulation
- Configuring the network managers
- Controlling management access
- Configuring control port parameters.

Connecting a Terminal to the Control Port

In order to configure the basic IP parameters, it is necessary to connect an ASCII terminal to the LA-210 control port and log in.

➤ **To configure the LA-210 system parameters:**

1. Configure an ASCII terminal as follows:
   - **Bits per second**: 115,200
   - **Data bits**: 8
   - **Parity**: None
   - **Stop bits**: 1
   - **Flow control**: None.
   - VT100 emulation.
2. Connect the terminal to the LA-210 CONTROL port.
3. Press <**Enter**> several times (to allow LA-210 to detect the rate).
4. Initiate the control session by entering the Administrator user name and password.

Configuring the Host Parameters

LA-210 allows entering IP parameters manually or using parameters acquired from the DHCP server.

➤ **To configure the Host parameters:**

1. Display the Host menu (**Configuration > System > Management > Host**).
2. Select **IP Address** to define the host IP address.
3. Select **IP Mask** to define the host IP mask.
4. Select **Default Gateway** to set the default gateway IP address.
5. Select **Default IP** to enter a default IP address. Configuring a default IP address is necessary if you want to preserve a Telnet or HTTP connection to LA-210 after having disabled its DHCP client.

Note *The default gateway must be in the same subnet as the host.*

```
                                    LA-210
Configuration>System>Management>Host

1. IP Address                       (0.0.0.0)
2. Mask                             (255.255.255.0)
3. Default Gateway                  (0.0.0.0)
4. Read Community                   (public)
5. Write Community                  (private)
6. Trap Community                   (public)
7. Encapsulation                    >

>
ESC-prev.menu; !-main menu; &-exit                                  1 Mngr/s
```

Figure 2-1. Host Menu (LA-210)

Configuring the Management Access

LA-210 allows you to enable access to the management system via an SNMP application.

➤ To configure the Management Access:

- Display the Management Access menu (**Configuration › System › Management › Management Access**), and set **SNMP Access** to **Enable**.

```
                                    LA-210
Configuration>System>Management>Management Access

1. User Access                      >
2. RADIUS Parameters                >
3. TELNET/SSH access                >  (Enable)
4. SNMP Access                      >  (Enable)
5. WEB Access                       >  (Enable)
6. Access Policy                    >  (Enable Remote)

>
ESC-prev.menu; !-main menu; &-exit                              1 Mngr/s
```

Figure 2-2. Management Access Menu (LA-210)

Adding a Network Management Station (NMS)

In order to remotely configure LA-210, the NMS needs to be listed in the Manager List. NMS configuration defines the IP address of a new network management station (NMS), and the enterprise-specific traps that will be sent to the new network management station.

The maximum number of network management stations is 10. If this number is exceeded, you must delete an existing station.

Each NMS is automatically assigned an index number in the range of 1 to 10.

When you allow sending general and alarm traps to a network manager, you can mask or unmask each trap (general or interface-specific). See the following section.

➤ **To add a network management station:**

1. From the Management menu (**Configuration > System > Management**), select **Managers List**.

   The Managers List menu appears (see *Figure 2-3*).

2. In the Managers list, select the IP address, which is **0.0.0.0** by default, and then select **Change Cell**.

   The Manager is assigned.

3. To mask or unmask a manager, select the desired manager's Manager Trap Mask entry and select **Change Cell**.

```
                                    LA-210
Configuration>System>Management>Managers List

Manager ID   Manager IP        Manager Trap Mask
    1.       0.0.0.0           Mask
    2.       0.0.0.0           Unmask
    3.       0.0.0.0           Unmask
    4.       0.0.0.0           Unmask
    5.       0.0.0.0           Unmask
    6.       0.0.0.0           Unmask
    7.       0.0.0.0           Unmask
    8.       0.0.0.0           Unmask
    9.       0.0.0.0           Unmask
   10.       0.0.0.0           Unmask

1. Change Cell

A - add R - remove X - clear table
ESC-prev.menu; !-main menu; &-exit; ?-help
```

Figure 2-3. Manager List Menu (LA-210)

Configuring the SNMP Communities

LA-210 allows you to specify the communities under which the ETX management agent accepts SNMP command.

➤ To configure the authentication community:

1. Display the Host (Management) menu (Configuration >System >Management >Host), and configure the following parameters:
2. Configure the desired parameters:
   - Read Community to enter the name of a community with read-only authorization.
   - Write Community to enter the name of a community with write authorization.
   - Trap Community to enter the name of a community to which LA-210 sends traps.
3. Type S to save the changes.

Note

The community names are case sensitive.

```
                                    LA-210
Configuration>System>Management>Host

1. IP Address                      (0.0.0.0)
1. Mask                            (255.255.255.0)
2. Default Gateway                 (0.0.0.0)
3. Read Community                  (public)
4. Write Community                 (private)
5. Trap Community                  (public)
6. Encapsulation                   >

>
ESC-prev.menu; !-main menu; &-exit                                  1 Mngr/s
```

Figure 2-4. Host Menu (LA-210)

2.3 Connecting LA-210 to Network Management Stations

LA-210 can be managed by a network management station (NMS) via of the unit Ethernet ports. The connection can be made either from a local LAN, or from a remote location, via a PSN connected to one of the ETX Ethernet ports.

Inband Management

RV-EMS/NGN LA-210 can be managed via SNMP by a Network Management Station (NMS) over one of unit's SHDSL uplink ports.

➤ To connect LA-210 to the Network Management Station:

1. Verify that the management parameters are properly configured.
2. Connect an Ethernet ports to the PSN on which management traffic from an authorized NMS flows.

Out-of-Band Management

RV-EMS/NGN LA-210 can be managed via SNMP by a Network Management Station (NMS) on the LAN (hub or switch) connected to the one of the unit's Ethernet ports.

➤ To connect LA-210 to the Network Management Station:

1. Connect one of the Ethernet links to a port of an Ethernet switch or hub serving the network to which the NMS is connected.
2. Make sure that the physical port connected to the NMS network is not bound to a bridge.

2.4 Launching RV-EMS/NGN LA-210

Begin using RADview-EMS/NGN LA-210 by launching the respective LA-210 View window.

➤ **To launch the LA-210 View window:**

- On the map, select and double-click the **LA-210** icon.

  The respective LA-210 View window opens. You can now perform configuration and monitoring functions in the entire LA-210 system.

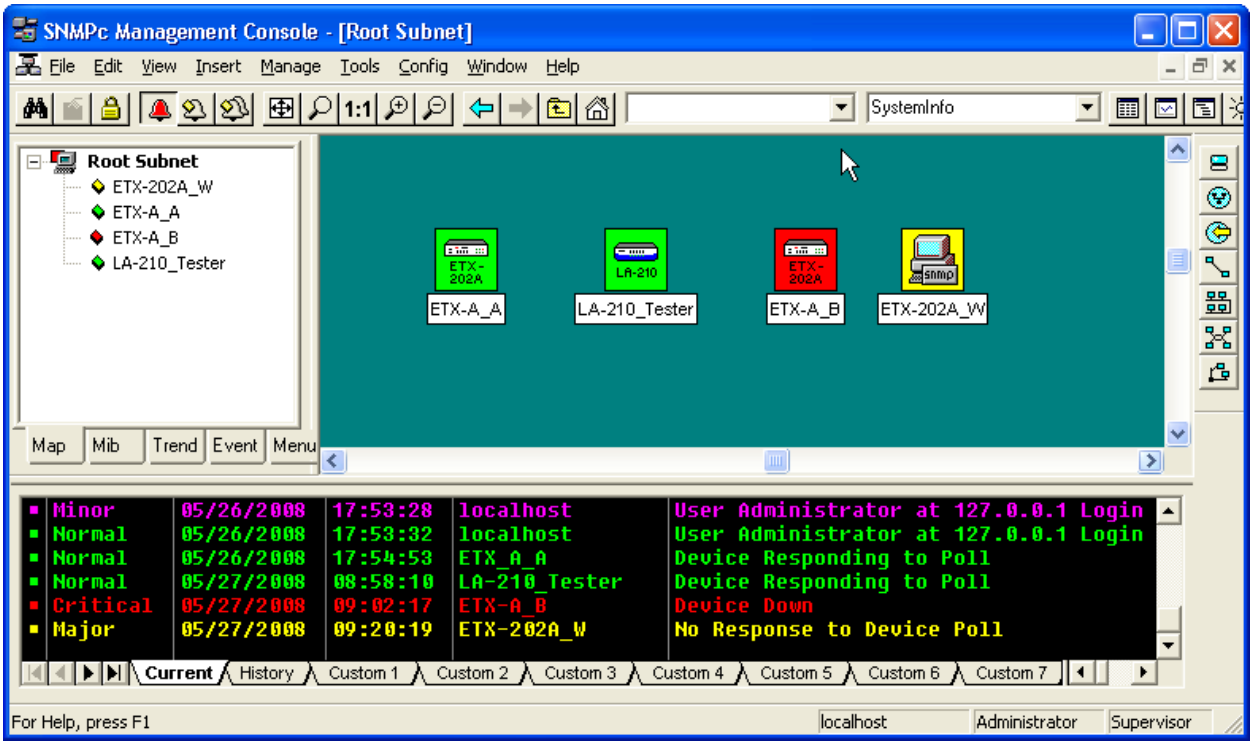

SNMPc Management Console - [Root Subnet]
File Edit View Insert Manage Tools Config Window Help
SystemInfo
Root Subnet
ETX-202A_W
ETX-A_A
ETX-A_B
LA-210_Tester
ETX-A_A
LA-210_Tester
ETX-A_B
ETX-202A_W
Map Mib Trend Event Menu
Minor 05/26/2008 17:53:28 localhost User Administrator at 127.0.0.1 Login
Normal 05/26/2008 17:53:32 localhost User Administrator at 127.0.0.1 Login
Normal 05/26/2008 17:54:53 ETX_A_A Device Responding to Poll
Normal 05/27/2008 08:58:10 LA-210_Tester Device Responding to Poll
Critical 05/27/2008 09:02:17 ETX-A_B Device Down
Major 05/27/2008 09:20:19 ETX-202A_W No Response to Device Poll
Current History Custom 1 Custom 2 Custom 3 Custom 4 Custom 5 Custom 6 Custom 7
For Help, press F1
localhost
Administrator
Supervisor

Figure 2-5. SNMPc Management Console

2.5 Using the Graphical User Interface (GUI)

From the LA-210 View window, you can configure and monitor all the LA-210 system elements.)

LA-210 View Window

The RADview-EMS/NGN LA-210 View window displays a dynamic graphical representation of the LA-210 front and back panels. The view varies per LA-210 and per number of ports in the device:

- Title bar
- Main menu bar
- Toolbar
- LA-210 device (front and back panel views):
  - Front panel: includes several LEDs indicating statuses of power, Ethernet links, and alarms
  - Back panel: includes AC/DC power connector, network and user Ethernet ports, and V.24 terminal connector
- Status bar.

Title Bar

Figure 2-6. Title Bar

The title bar (at the top of the View window) displays the name or IP address of the element given on the Network station (SNMPc or HPOV) and whether the device is connected or disconnected.

Menu Bar

Figure 2-7. Main Menu Bar

The main menu bar has drop-down sub-menus. Click a menu to display all the items in that menu. The menu items allow you to perform operations related to the selected elements in the LA-210 system. The menus are context sensitive; menu items are enabled or disabled as applicable to the selected element.

In addition to using the menu bar, operations related to specific elements can also be performed using pop-up menus activated by right-clicking the mouse over the selected element.

Toolbar

System Level

Port Level

Figure 2-8. Toolbars

Below the menu bar appears toolbar icons that allow you to perform specific LA-210 operations related to the selected elements in the LA-210 system with a single mouse-click. This toolbar is context sensitive; the icons displayed change depending on the LA-210 element currently selected.

Table 2-1. Toolbar Buttons

Icon	Name	Function
	System Info	Displays system info
	Poll Agent	Poll system
	User's Manual	Displays online help file of user's manaual

Status Bar

Figure 2-9. LA-210 Status Bar

The LA-210 status bar appears at the bottom of the View window and indicates the current state of the system, as summarized in *Table 2-2*.

Table 2-2. Status Types and Descriptions

Status	Description
Working	Connection to the device is in progress
Waiting	Waiting for connection to the device
Interrupted	Connection to the device failed (time-out)
Ready	Connection to the device is successful
Polling	Device polling is in progress.

LA-210 System

The main, central workspace of the View window is a dynamic graphical representation of the front and back panels of the LA-210 device. In this workspace you can select the system or the network or user ports to invoke specific menu commands to perform activities, such as configuration and fault management.

Note that you can right-click the mouse over selected elements to invoke the relevant menu commands.

When you perform certain activities, such as clicking the System Information button, a dialog box is displayed (in a secondary window) on top of the LA-210 View window.

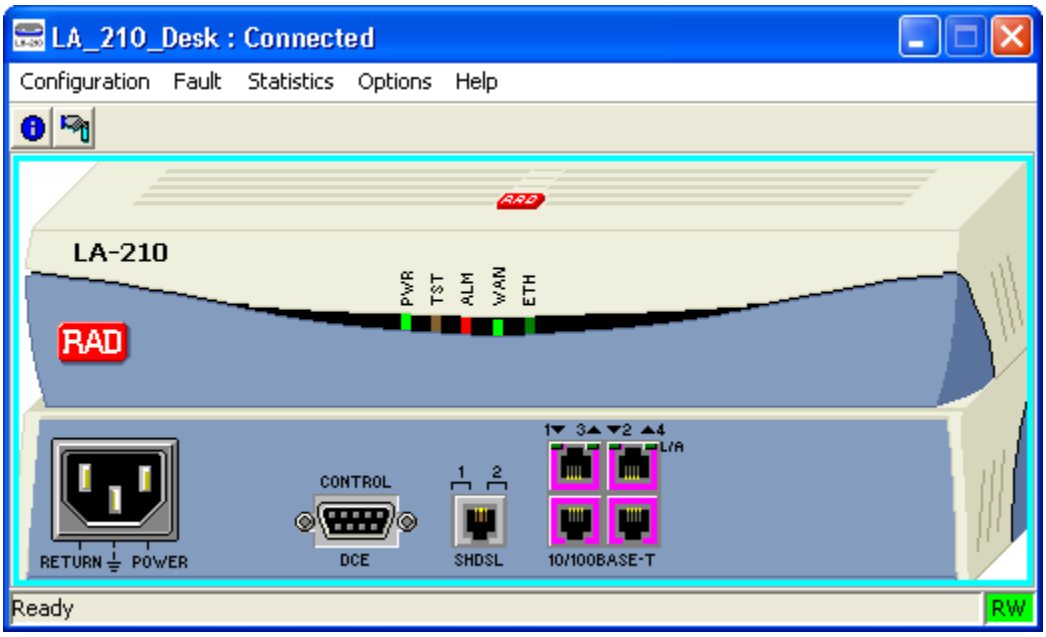


Figure 2-10. LA-210 System

RADview LA-210 Menu Maps

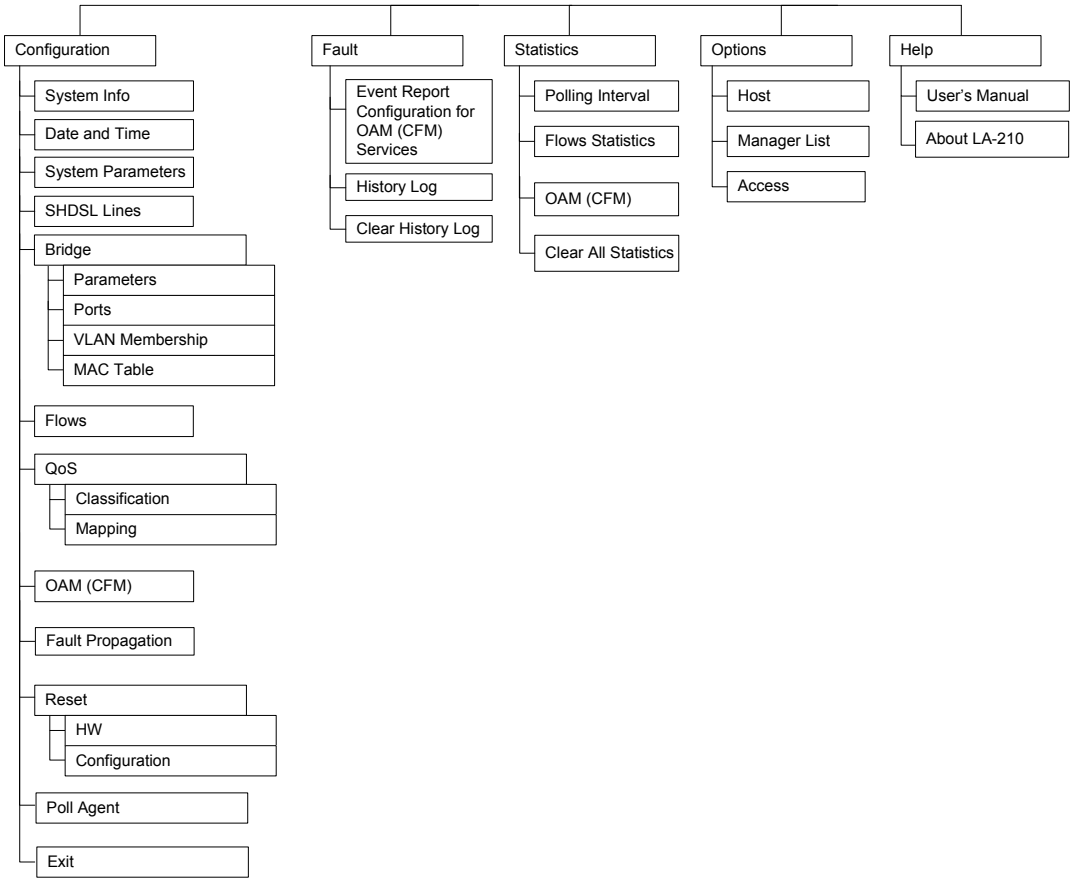


Figure 2-11. System Level Menu Map

Note

- *Some parameters are unavailable, depending on whether the unit operates in Flow mode or Bridge mode.*
- *These menus are also available as shortcut menus upon right-click anywhere in the system view.*

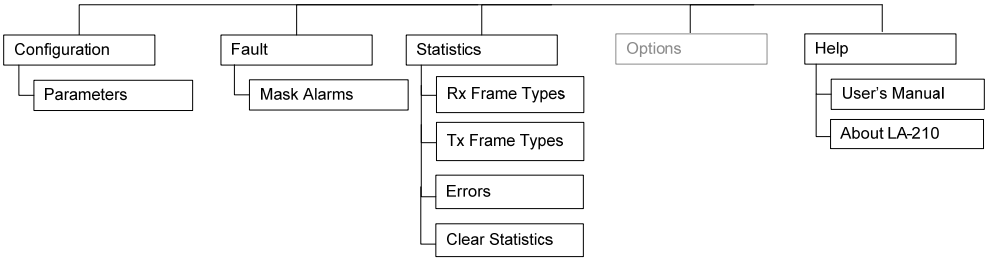


Figure 2-12. Port Level Menu Map – Ethernet Ports

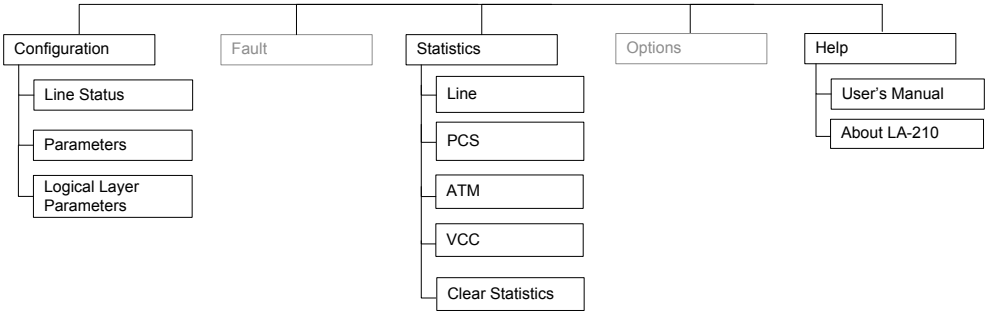


Figure 2-13. Port Level Menu Map – Ethernet Ports

Note

- *Some parameters are unavailable, depending on whether the unit operates in Flow mode or Bridge mode.*
- *These menus are also available as shortcut menus upon right-click anywhere in the system view.*

Selecting the System

Before you can perform system operations, you must first select the system in the LA-210 View window.

The network and user ports may be selected. All other areas that are not ports will represent the system and a frame around the panel will be displayed.

The default selection is the system.

➤ **To select the system:**

- Click inside the LA-210 View window. Ensure that no border surrounds any of the ports in the window.

  A blue border outlines the respective LA-210 device, indicating that the whole system is selected. (The main view includes the front and back panels of the device.)

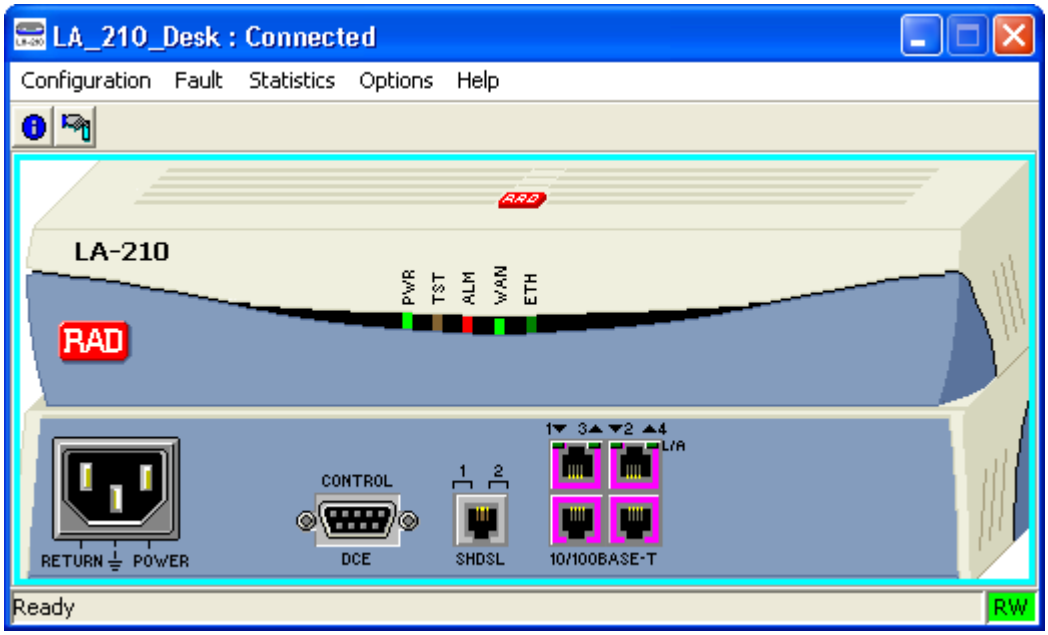


Figure 2-14. LA-210 System Selected in the View Window

The LA-210 application opens with a specific IP address. The NMS discovers the device by recognizing the IP address it was designated.

Selecting Ports

Before you can perform port operations, you must first select a port in the LA-210 View window (see *Selecting the System* on page *2-12* for available LA-210 ports).

➤ **To select a port:**

- In the LA-210 View window, click a port to select it.

  A blue border outlines the selected port, indicating that it is selected.

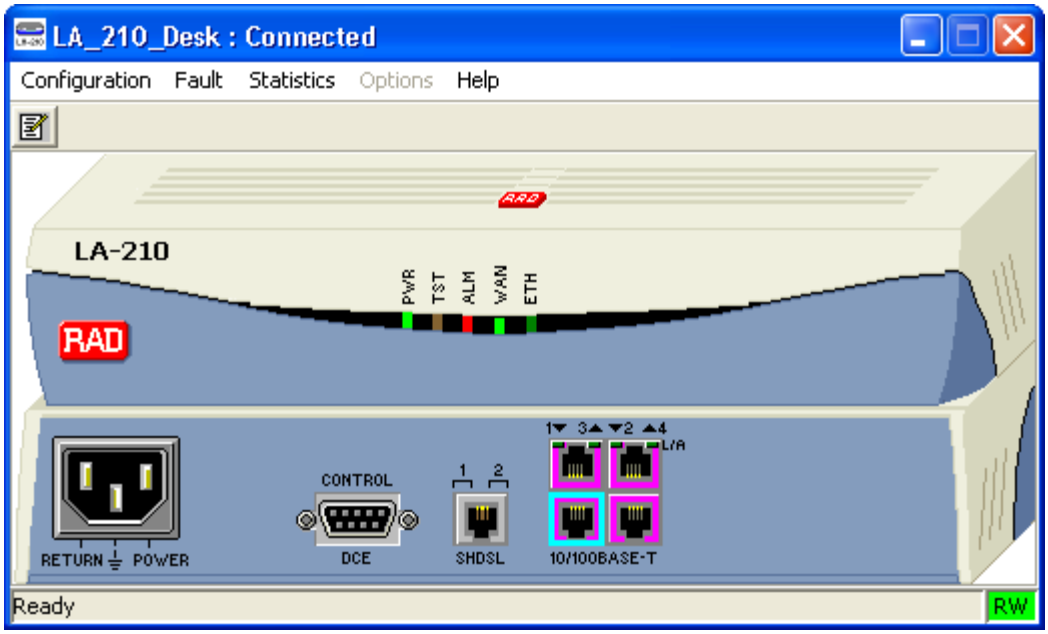


Figure 2-15. LA-210 Port Selected in the View Window

Front Panel Connectors

Table 2-3 lists the ports and connectors of LA-210.

Table 2-3. LA-210 Ports and Connectors

Name	Number of Ports	Connector Type
Control	1	DB9
SHDSL	1 or 2	RJ-45
10/100/1000BASE-T	1–4	RJ-45

Indicators and LEDs

This section provides lists and color/status descriptions of the LA-210 device LED indicators.

The LA-210 View window uses the standard RAD color codes to indicate operational and communication status of the agent, ports, and power supply.

Port Status Indicators

Operational status for ports will be indicated by color within the port itself, based on polling and trap notifications of interfaces administrational/operational status. The port status is color-coded in gray, magenta, or light blue.

Table 2-4 lists and describes the port status colors.

There is no indication for the Control and Alarm ports.

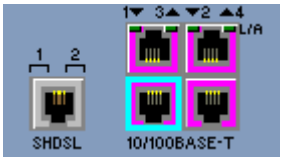


Figure 2-16. Port Status Indicators (Blue, Magenta, and Gray)

Table 2-4. Port Status Indicators

Port	Color	Description
SHDSL	Magenta	Errors indicated
	Blue	Active test on port
	Gray	No errors exist and no tests are running
10/100/1000 BASE-T	Magenta	Errors indicated
	Blue	Active test on port
	Gray	No errors indicated and no tests running

LEDs

RADview LA-210 displays LED indicators in real-time as they actually appear on the device. The LED indications describe communication and operation status of LA-210 and its links (see *Table 2-5*).

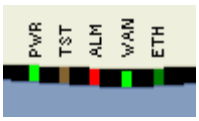


Figure 2-17. LA-210 (Front Panel) LEDs

Table 2-5. LA-210 LED Summary

Name	Function
PWR (green)	On: RV-EMS/NGN LA-210 is on Off: RV-EMS/NGN LA-210 is off
TST (red)	On: A test is active Off: A test is inactive
ALM (red)	On: A new alarm is detected in the alarm buffer Off: No alarm currently detected
WAN (SHDSL SYNC 1, 2, 3, 4 - green/red)	Blinking (green): SHDSL line is being synchronized Blinking (green/orange): At least one line synchronized and the second one is trying to. On (orange): At least one line is synchronized and at least one line is not. On (green): All enabled lines are synchronized Blinking (red): No line is synchronized, at least one line is trying to synchronize. On (red): No line is synchronized.

Name	Function
ETH (LINK/ACT – green/yellow)	On (green): Ethernet link is up Off: Ethernet link is down Blinking (yellow): Data is being transferred
E1	Off: Not used

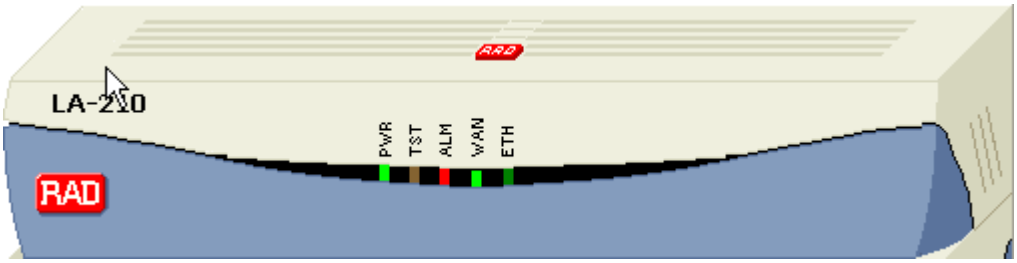


Figure 2-18. LA-210 (Front Panel) LEDs

Chapter 3

Configuration Management

This chapter discusses how to configure the LA-210 management system using RADview-EMS/NGN.

This chapter describes how to configure LA-210, and explains how to perform the following tasks:

- *Configuration Management*
  - *Setting the System Parameters*
    - *Viewing and Specifying Device Information*
    - *Setting System Date and Time*
- *Setting the Operational Parameters*
  - *Viewing and Configuring SHDSL Port Parameters*
  - *Viewing and Configuring Ethernet Port Parameters*
  - *Configuring System Parameters*
  - *Configuring SHDSL Lines*
  - *Configuring the Flows*
    - *Configuring the Quality of Service*
    - *Adding, Editing and Removing Flows*
  - *Configuring OAM (CFM)*
  - *Configuring Bridge Parameters*
    - *Configuring the VLAN Membership*
    - *Configuring MAC Tables*
    - *Configuring QoS*
  - *Configuring Fault Propagation*
- *Additional Tasks*
  - *Resetting the Agent*
  - *Resetting the Configuration*

3.1 Setting the System Parameters

RADview allows you to view and modify LA-210 configuration. The **Configuration** menu provides access to system level configuration.

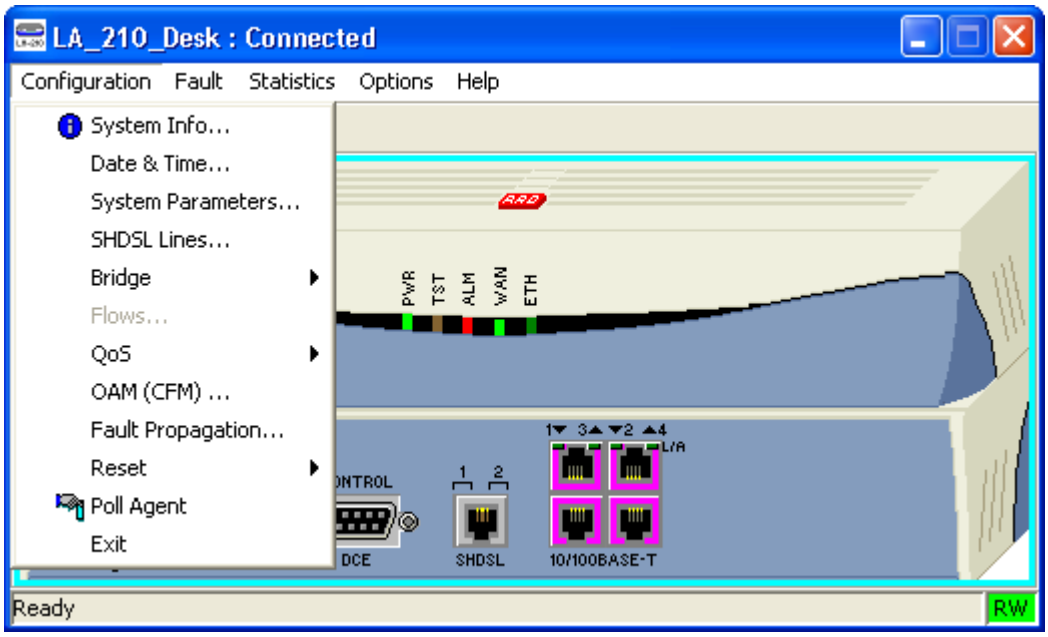


Figure 3-1. System Level Configuration Menu

The **System Info** command enables you to view and set physical information about LA-210.

Viewing and Specifying Device Information

➤ **To view and specify LA-210 device information:**

1. In the LA-210 View window, select the system.

2. On the menu bar, click **Configuration > System Info**.

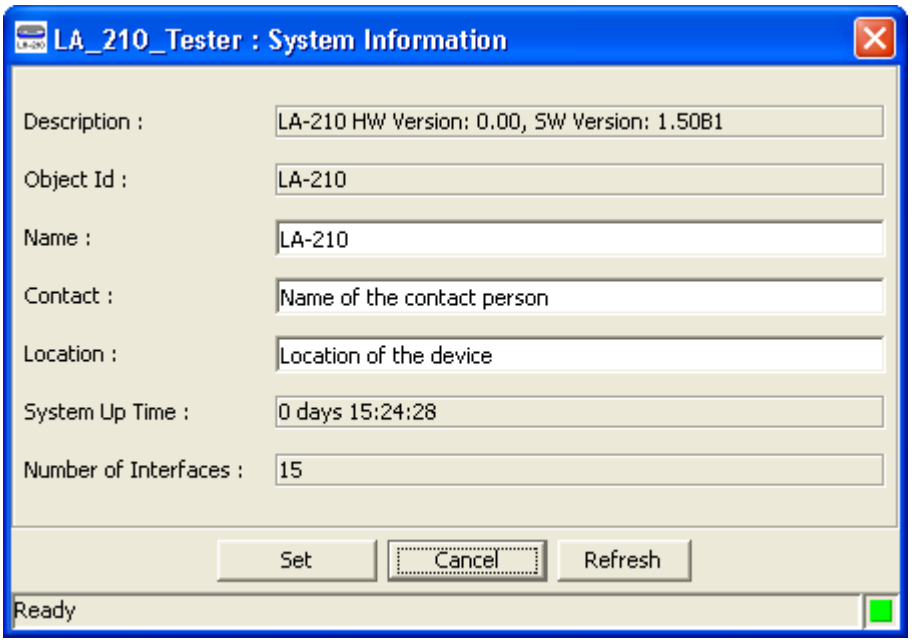


Figure 3-2. System Information Dialog Box

3. Fill in the fields, as described in *Table 3-1*.
4. Click <**Set**> to implement the changes.

Table 3-1. System Information Dialog Box Parameters

Parameter	Possible Values / Remarks
Description	Description of the device, including the full name and version identification of the device's hardware type and software operating-system. Read-Only
Object ID	System identification number Read-Only
Name	System name Format: **String (32 characters)**
Contact	Name of the contact person for this system Format: **String (32 characters)**
Location	Physical location of the device Format: **String (32 characters)**
System Up Time	Length of time the system has been running. Format: **d: days, hh:mm:ss** Read-Only
Number of Interfaces	Number of network interfaces present in the system. Read-Only

Note *The System Information Name, Contact, and Location dialog box fields are enabled, regardless of whether or not there is communication with the agent.*

Setting System Date and Time

RADview allows you to set the date and time for the LA-210 internal real-time clock. In addition, you can configure an SNTP server, to lock LA-210 to a reliable clock source. .

➤ **To set system date and time:**

1. In the LA-210 View window, select the system.
2. On the menu bar, click **Configuration > Date and Time**.

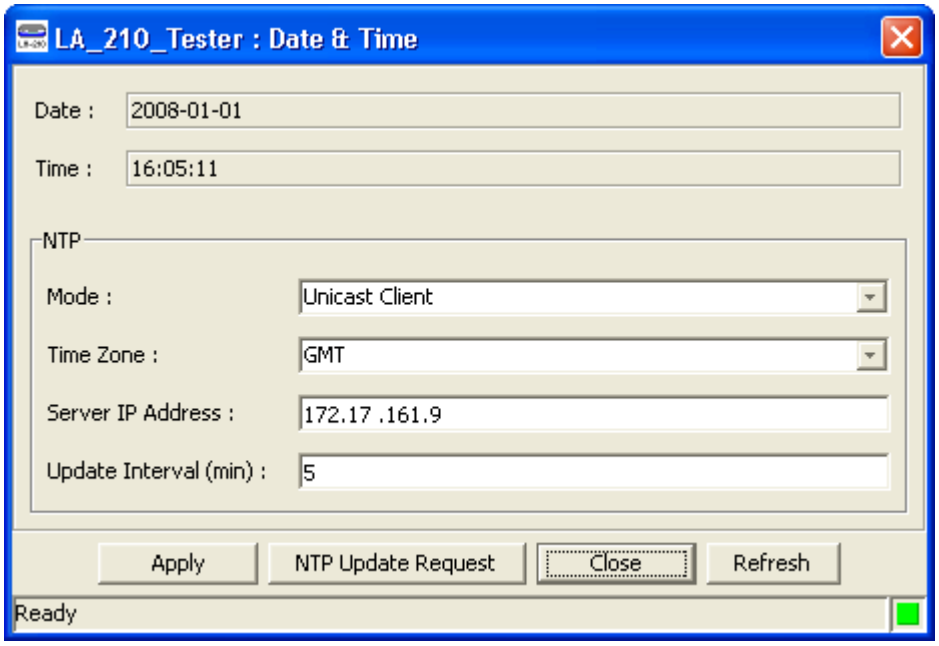


Figure 3-3. Date & Time Dialog Box

3. Fill in the fields, as described in *Table 3-2*.
4. To change the date, in the Date field, do one of the following:
   - Type a date

     OR
   - Click the Date combo box drop-down arrow to display a calendar from which you can select the date by clicking the relevant option.
5. Click <**Apply**> to implement the changes.

Table 3-2. Date & Time Dialog Box Parameters

Parameter	Possible Values / Remarks
Date	System date. Format: yyyy-mm-dd *Note: Can be set when Mode is **Unicast Client**.*
Time	System time. Format: hh:mm:ss *Note: Can be set when Mode is **Unicast Client**.*
SNTP	
Mode	SNTP mode. Disable Unicast Client
Time Zone	SNTP time zone. GMT–12:00 GMT–11:00 ... GMT–1:00 GMT GMT+1:00 ... GMT+12:00 *Note:* • *Disabled when Mode is* Disable. • *Enabled when Mode is **Unicast Client**.*
Server IP Address	IP address of the SNTP server. *Note:* • *Disabled when Mode is **Disable**.* • *Enabled when Mode is **Unicast Client**.*
Update Interval (min)	SNTP update interval in minutes. Period of time after which LA-210 polls the SNTP server. 1...1440 *Note:* • *Disabled when Mode is **Disable**.* • *Enabled when Mode is **Unicast Client**..*

3.2 Setting the Operational Parameters

This section discusses how to manage LA-210 ports for operation using RADview LA-210.

Managing ports includes the following tasks:

- Selecting the port
- Viewing and modifying port parameters

Additional port operations are discussed in the following chapters:

- Monitoring port performance (see *Chapter 5*)
- Configuring event reports for Ethernet ports (see *Chapter 7*).
- Diagnostics (see *Chapter 7*).

Viewing and Configuring SHDSL Port Parameters

RADview allows you to view and modify parameters and monitor the line status. You view and set parameters for each SHDSL line separately.

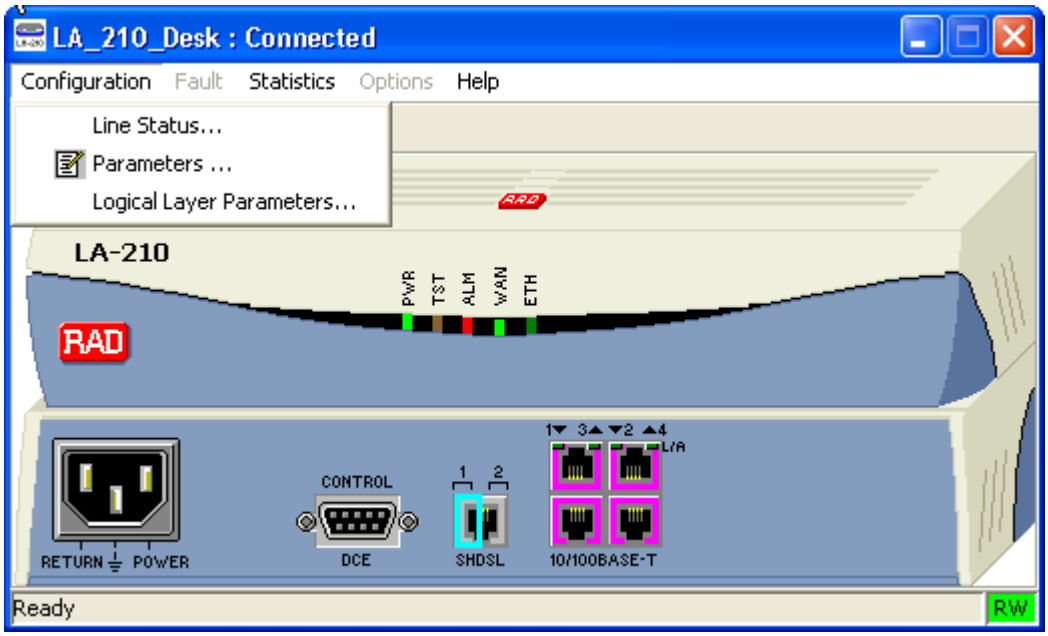


Figure 3-4. Port Level Configuration Menu

➤ **To view and modify SHDSL port parameters:**

1. In the LA-210 View window, select an SHDSL line on one of the SHDSL ports (1, 2, 3 or 4) ports as illustrated in *Figure 3-5*.
2. On the menu bar, click **Configuration > Parameters**.

   The SHDSL Line Parameter screen is displayed.
3. Configure the relevant SHDSL line as detailed in *Table 3-3*.

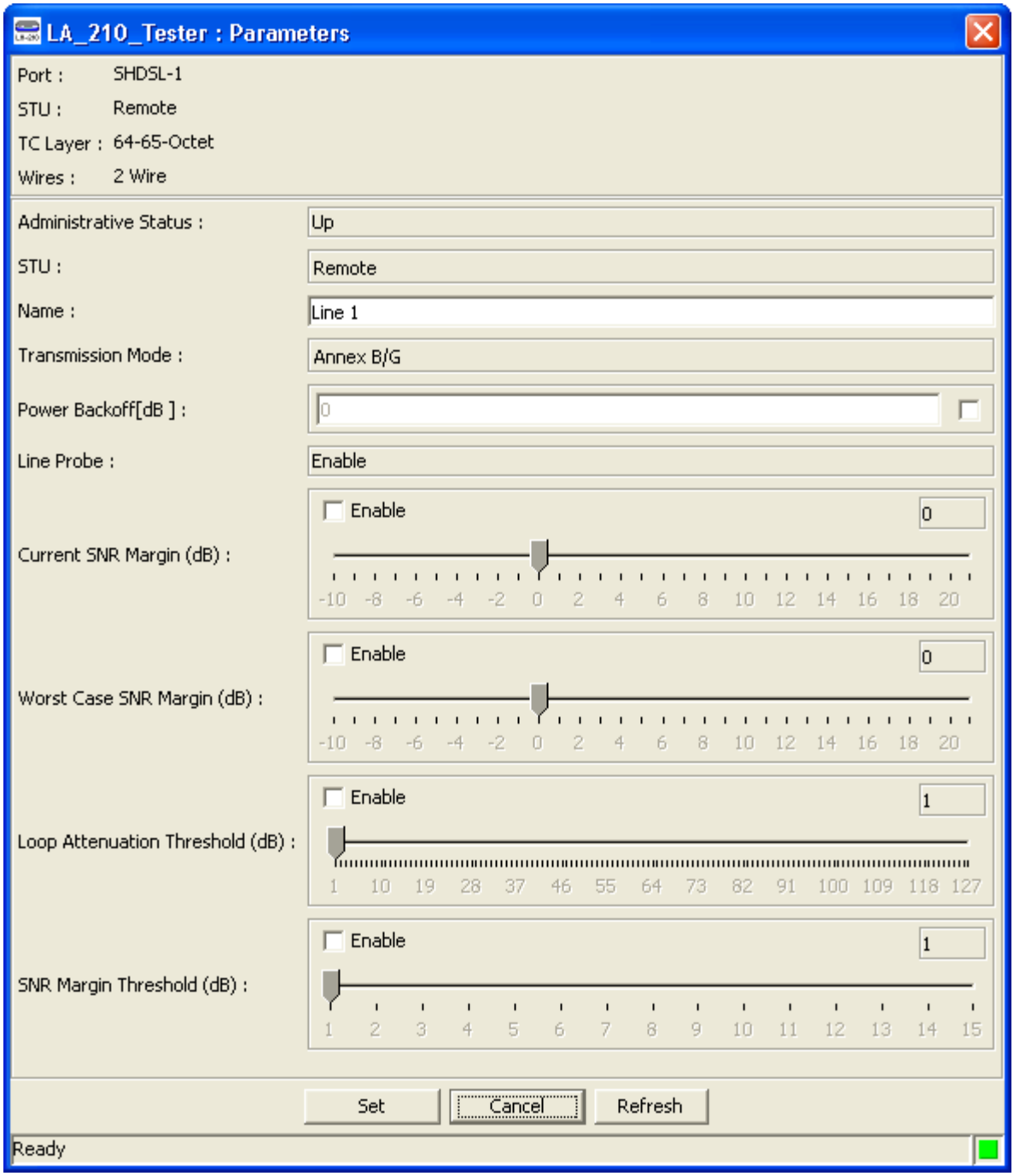

LA_210_Tester : Parameters
Port : SHDSL-1
STU : Remote
TC Layer : 64-65-Octet
Wires : 2 Wire
Administrative Status : Up
STU : Remote
Name : Line 1
Transmission Mode : Annex B/G
Power Backoff[dB] : 0
Line Probe : Enable
Enable 0
Current SNR Margin (dB) :
-10 -8 -6 -4 -2 0 2 4 6 8 10 12 14 16 18 20
Enable 0
Worst Case SNR Margin (dB) :
-10 -8 -6 -4 -2 0 2 4 6 8 10 12 14 16 18 20
Enable 1
Loop Attenuation Threshold (dB) :
1 10 19 28 37 46 55 64 73 82 91 100 109 118 127
Enable 1
SNR Margin Threshold (dB) :
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
Set
Cancel
Refresh
Ready

Figure 3-5. SHDSL Port Parameter Screen

Table 3-3. SHDSL Port Parameters

Parameter	Possible Values / Remarks
Port	Physical port **1–2** Read-only ***Note:*** *Can be set when Mode is* ***Unicast Client****.*
STU	**Remote** Read-only
TC Layer	Operational mode **64-65 Octet** Read-only
Wires	Displays the current wire mode. **2 Wire** Read-only
Administrative Status	Indicates whether the link is active or not **Up** **Down** Read-only
STU	**Remote** Read-only
Name	The index of the PME (physical medium entity), displays the selected PME. **Line 1–4**
Transmission Mode	**Annex B/G**
Power Backoff[db]	Temporarily reducing power while transmitting in order to prevent disturbances due to a magnetic field (in ms). **0 (Off)**
Line Probe	Support for Line Probe of units associated with an SHDSL span. **Enabled**
Current SNR Margin	Selects the downstream/upstream current condition target SNR margin in dB. To enable the slider, check **Enable**. **-10–21 db** **Default: 0 (Disable)** ***Note****: Available only when line probing is enabled.*
Worst Case SNR Margin	Selects the downstream/upstream worst-case target SNR margin in dB. To configure the worst margin. To enable the slider, check **Enable**. **-10–21 db** **Default: 0 (Disable)** ***Note****: Available only when line probing is enabled.*

Parameter	Possible Values / Remarks
Loop Attenuation Threshold	Defines the loop attenuation alarm threshold. To enable the slider, check **Enable**. **0–127 db** **Default: 0**
SNR Margin Threshold	This parameter configures the SNR margin alarm threshold. To enable the slider, check **Enable**. **0–15 db** **Default: 0**

Viewing and Configuring Ethernet Port Parameters

You can view and configure Ethernet port parameters for LA-210.

➤ **To view and modify Ethernet port parameters:**

1. In the LA-210 View window, select an Ethernet port.
2. On the menu bar, click **Configuration > Parameters**.

   The Ethernet Port parameters associated with the selected port appear.

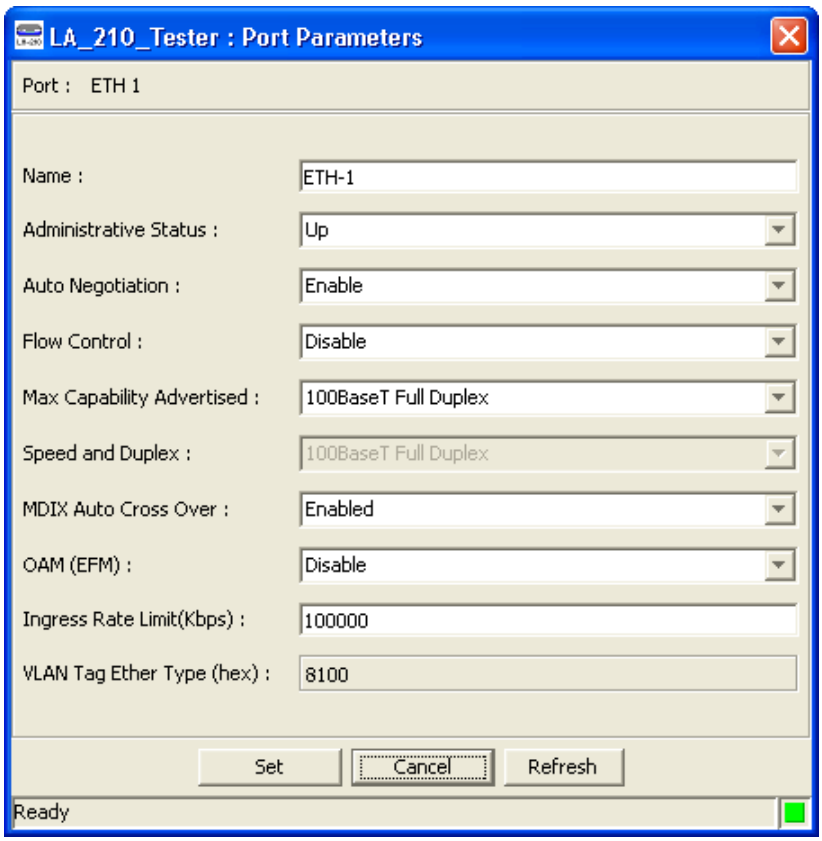


Figure 3-6. Ethernet Port Parameters Dialog Box

3. Fill in the fields, as described in *Table 3-4*.
4. Click <**Set**> to implement the changes.

Table 3-4. Ethernet Port Parameters

Parameter	Possible Values / Remarks
Name	The selected Ethernet port **ETH-1 – ETH-4** Read-only
Administrative Status	The selected Ethernet port's administrative status **Up,** **Down** **Default: Up**
Auto Negotiation	Enables or disables auto-negotiation **Enable** **Disable** **Default: Enable**
Flow Control	Used to configure the default administrative PAUSE mode for this interface. **Enable** **Disable** **Default: Disable**
Max Capability Advertised	Specifies the set of capabilities advertised by the local autonegotiation entity. **10baseT Half Duplex** **10baseT Full Duplex** **100baseTX Half Duplex** **100base TX Full Duplex** **Default: 100BaseTX full-duplex** ***Note**: This parameter only appears when autonegotiation is enabled.*
Speed & Duplex	The static speed and duplex that the port uses when the autonegotiation is disabled. **10baseT Half Duplex** **10baseT Full Duplex** **100baseTX Half Duplex** **100base TX Full Duplex** **Default: 100BaseTX full-duplex** ***Note**: This parameter only appears when autonegotiation is disabled.*
MDIX Auto Cross Over	Enables and disables Auto Cross Over functionality. **Enable** **Disable** **Default: Enable**
Mask Alarms	Masks or unmasks alarms associated with the selected Ethernet port. **Mask** **Unmask** **DefaulT: Unmask**

Parameter	Possible Values / Remarks
OAM (EFM)	Enables/disables IEEE 802.3ah **Enable** **Disable** **Default: Enable**
Ingress Rate Limit	Defines the rate limit **64 – 100000 kbps** **Default: 25000 kbps**
VLAN Tag Ether Type	Defines the VLAN TAG identifier **0 – FFFF** **Default: 8100**

Configuring System Parameters

LA-210 can operate in Bridge or Flow mode. You use the System menu on the System level to choose the desired mode.

➤ **To view and modify Ethernet port parameters:**

1. In the LA-210 View window, select the System view.
2. On the menu bar, click **Configuration > System Parameters**.

   The System Parameters window appears.

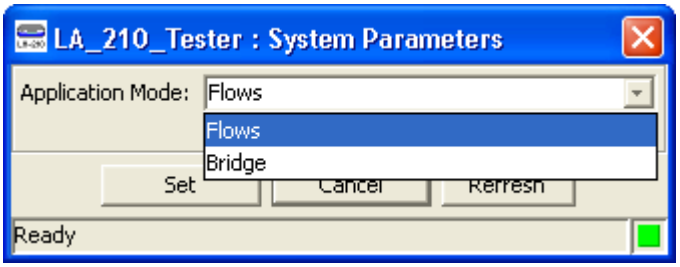


Figure 3-7. System Parameters Dialog Box

3. Select **Flows** or **Bridge** as desired and then click **Set**.

   The Flows or Bridge menu and associated parameters become available as selected.

Configuring SHDSL Lines

In addition to the physical layer, you configure additional SHDSL line and PCS (physical coding sublayer) parameters on the system level, such as the TC layer and the wire mode.

➤ **To view the SHDSL parameters on the system level:**

1. In the LA-210 View window, select the System view.
2. On the menu bar, click **Configuration > SHDSL Lines**.

The SHDSL Layers Parameters window appears with an overview of SHDSL parameters set.

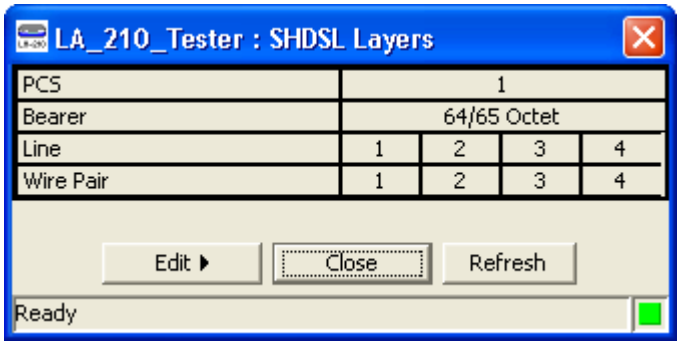


Figure 3-8. SHDSL Layers

➤ **To configure SHDSL line parameters:**

1. In the SHDSL Layers screen, click **Edit** and then select **Line...**

   The Edit SHDSL screen appears.

2. Configure the parameters as needed and then click **Set**.

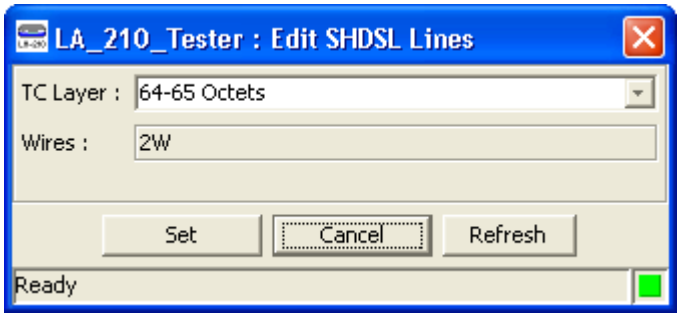


Figure 3-9. SHDSL Lines Screen

Table 3-5. SHDSL Lines

Parameter	Possible Values / Remarks
TC Layer	Operational mode **46-65 Octets** **ATM** **Default: 46-65 Octets** ***Note**: Only the first line can be configured to ATM. The remaining lines remain invisible.*
Wires	Wire operation mode for SHDSL lines **2 Wire** **4 Wire** **6 Wire** **8 Wire** **Default: 2 Wire** ***Note**: Configurable only if **TC Layer** is set to **ATM***

➤ **To configure the PCS parameters:**

1. In the SHDSL Layers screen, click **Edit** and then select **PCS...**

   The PCS screen appears.

2. Configure the parameters as needed and then click **Set**.

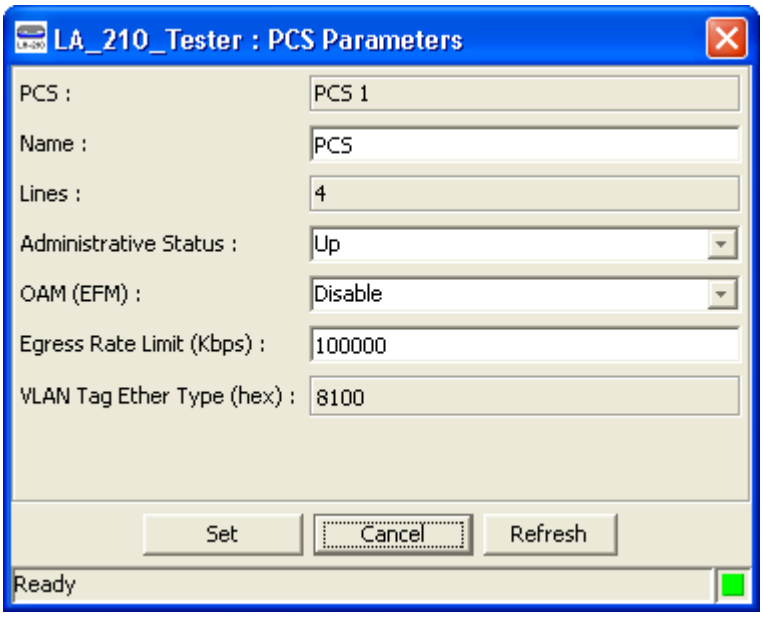


Figure 3-10. PCS Parameters Screen

Table 3-6. PCS Parameters

Parameter	Possible Values / Remarks
PCS	Index of the SHDSL PCS (physical coding sublayer) **PCS 1** Read-only
Name	Assigns a name to the PCS **Default: PCS**
Lines	Number of available SHDSL lines Up to **4** Read-only
Administrative Status	Sets the administrative status **Up** **Down** **Default: Up**
OAM (EFM)	Single segment (link) OAM according to 802.3ah for remote management and fault indication, including remote loopback and MIB parameters retrieval. **Enable** **Disable** **Default: Disable**

Parameter	Possible Values / Remarks
Egress Rate Limit (Kbps)	Defines the rate limit for all queues together. 64 – 100000 Default: 100000
VLAN Tag Ether Type (hex)	Defines the VLAN Tag identifier. 0 – FFFF Default: 8100

Configuring the Flows

In Flow mode, incoming customer traffic can be mapped to Ethernet flows according to user defined per-port criteria.

This section explains how to select the flow interfaces and specify the flows according to specific criteria.

➤ To verify that LA-210 operates in Flow mode:

1. In the LA-210 View window, select the System view.
2. On the menu bar, click **Configuration > System Parameters**.

   The System Parameters dialog appears displaying the current mode.

Configuring the Quality of Service

RV-EMS/NGN LA-210 supports Quality of Service (QoS) in DSL egress direction. Traffic is classified according to VLAN priority (802.1p), DSCP (bits 0-5 in IP TOS byte) and port based. Mapping classification results into four transmit priority queues with strict priority. Before you can start configuring flows, you have to configure the QoS parameters.

Configuring Ingress BW Profiles

The section below explains how to view, add, edit and remove Ingress bandwidth (BW) profiles.

➤ To view existing Ingress BW Profiles:

1. In the LA-210 View window, select the System view.
2. On the menu bar, click **Configuration > QoS**.

   The QoS menu appears.
3. Select **Ingress BW Profiles**.

   The Ingress BW Profiles list appears.

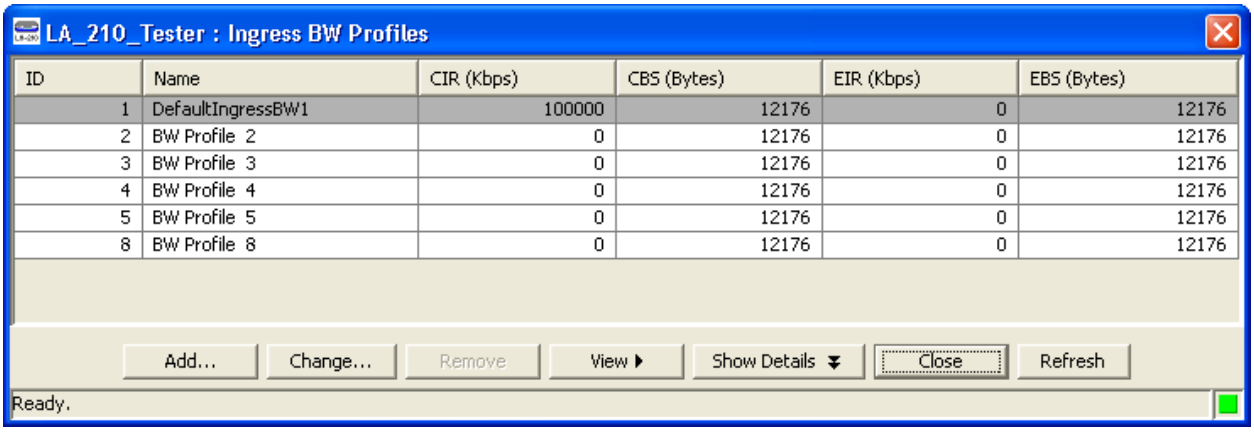


Figure 3-11. Ingress BW Profiles List

➤ **To add an Ingress BW profile:**

1. In the Ingress BW Profiles list, click **Add**.

   The Add Ingress BW Profiles dialog appears.

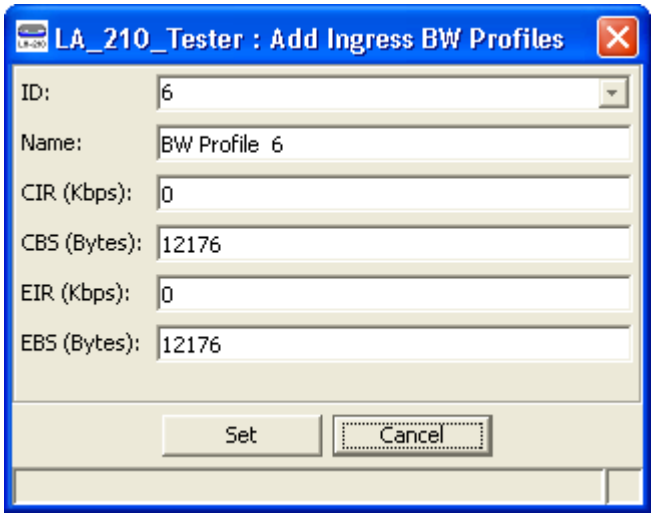


Figure 3-12. Adding an Ingress BW Profile

2. Configure the parameters as detailed in *Table 3-7* and then click **Set**.

   The Ingress BW profile is added.

Table 3-7. Ingress BW Profile Parameters

Parameter	Possible Values / Remarks
ID	Selects an ingress bandwidth profile identification number. **1–64** **Default: 1**
Name	Assigns a nam to the ingress bandwidth profile.

Parameter	Possible Values / Remarks
CIR (Kbps)	Defines the Committed Information Rate (CIR) for the current profile. The CIR specifies a bandwidth with committed service guarantee ("green bucket" rate). **0–100000** **Default: 0**
CBS (Bytes)	Defines the Committed Burst Size (CBS) for the current profile. The CBS specifies the maximum guaranteed burst size ("green bucket" size). **0–32,767 kbps** **Default: 0**
EIR (Kbps)	Defines the Excess Information Rate (EIR). The EIR specifies an extra bandwidth with no service guarantee ("yellow bucket" rate). **0–100,000 kbps** **Default: 100,000**
EBS (Bytes)	Defines the Excess Burst Size (EBS). The EBS specifies the extra burst with no service guarantee ("yellow bucket" size). **0–32,767 kbps** **Default: 32,767**

➤ **To edit an existing Ingress BW profile:**

1. In the ingress BW Profiles list, select the desired Ingress BW profile and click **Change**.

   The Change Ingress BW Profiles dialog appears. This screen is identical with the Add Ingress BW screen, only the bandwidth profile ID is read-only.

2. Edit the parameters as desired and then click **Set**.

   The Ingress BW Profile parameters are updated

➤ **To refresh the Ingress BW Profiles list:**

- In the Ingress BW Profiles list, click **Refresh**.

  The Ingress BW Profiles list is updated.

➤ **To remove an existing Ingress BW profile:**

- In the Ingress BW Profiles list, select the desired ingress BW profile and click **Remove**.

  The selected Ingress BW profile is removed from the list.

Note *One ingress BW profile must remain listed and cannot be deleted.*

Defining CoS Profiles

The section below explains how to view, add, edit and remove CoS profiles for a flow.

➤ **To view existing CoS Profiles:**

1. In the LA-210 View window, select the System view.
2. On the menu bar, click **Configuration > QoS**.

   The QoS menu appears.
3. Select **CoS Profiles**.

   The CoS Profiles list appears.

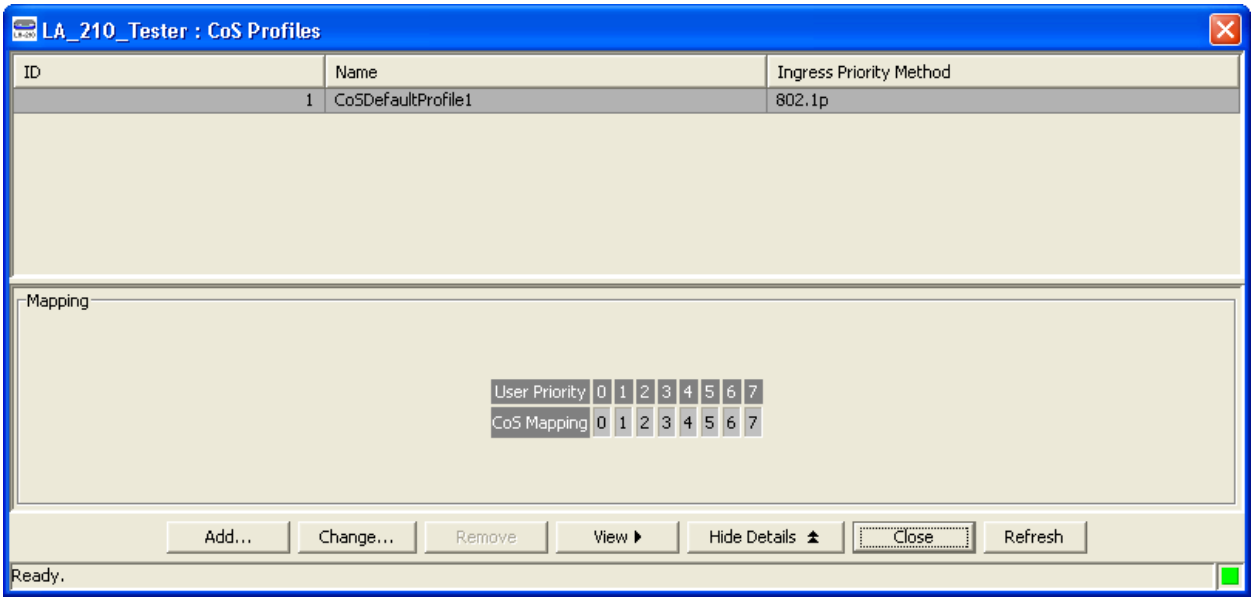


Figure 3-13. CoS Profiles List

➤ **To add a CoS profile:**

1. In the CoS Profiles list, click <**Add**>.

   The Add CoS Profiles dialog appears.

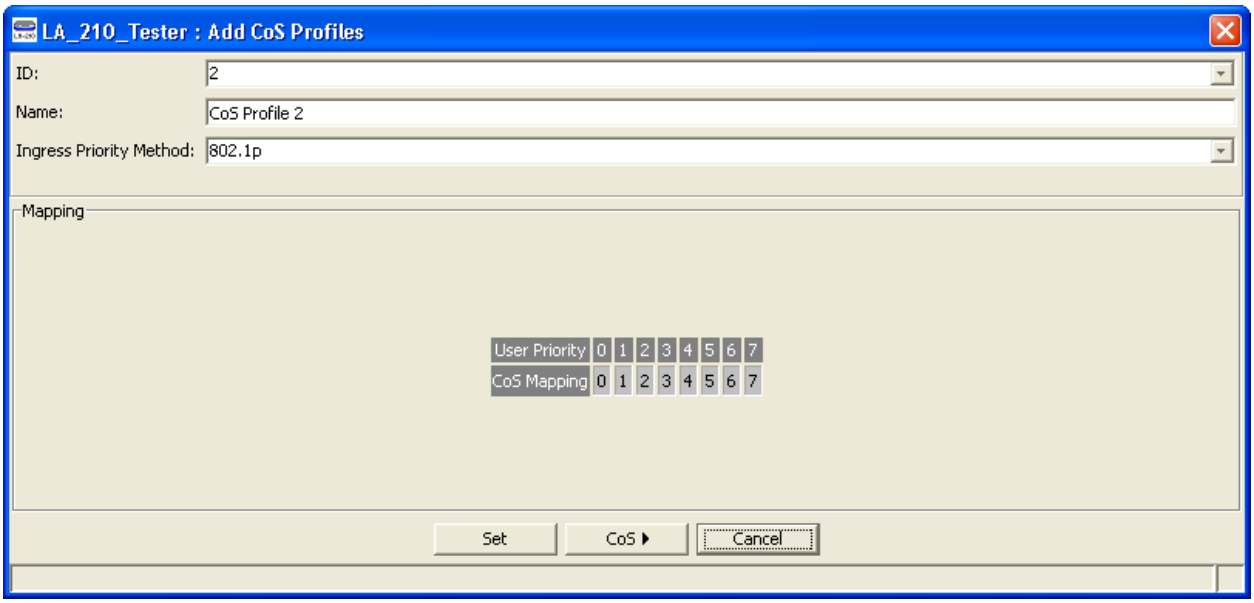


Figure 3-14. Adding CoS Profile

2. Configure the parameters as detailed in *Table 3-8* and then click **Set**.

   The CoS profile is added.

Table 3-8. CoS Profile Parameters

Parameter	Possible Values / Remarks
ID	Selects a CoS profile identification number. **1–8**
Name	Assigns a nam to the ingress bandwidth profile. String of up to 20 characters **Default: CoSProfile<ID>**
Ingress Priority Method	Defines the Committed Information Rate (CIR) for the current profile. The CIR specifies a bandwidth with committed service guarantee ("green bucket" rate). **802.1p** **DSCP** **IP Precedence** **Default: 0**

➤ **To map CoS profiles to user priorities:**

1. In the map, select the desired CoS values that are associated with user priorities.
   - To select multiple CoS Map values, press and hold <**Ctrl**> and click the desired CoS Mapping values.
2. To modify the CoS map values, click **CoS** and then select a value between **0 (lowest priority)** and **7 (highest priority)**.
3. Click <**Set**>

   The new CoS Mapping values are set.

➤ **To edit an existing CoS profile:**

1. In the CoS Profiles list, select the desired CoS profile and click **Change**.

   The Change CoS Profiles dialog appears. This screen is identical with the Add CoS screen, only the ID field is read-only.
2. Edit the parameters as desired and then click <**Set**>

   The CoS Profile parameters are updated

➤ **To refresh the CoS Profiles list:**

- In the CoS Profiles list, click **Refresh**.

  The CoS Profiles list is updated.

➤ **To remove an existing CoS profile:**

- In the CoS Profiles list, select the desired CoS profile and click **Remove**.

  The selected CoS profile is removed from the list.

Noteo *One CoS profile must remain listed and cannot be deleted.*

Defining Marking Profiles

The section below explains how to view, add, edit and remove Marking profiles for a flow.

➤ **To view existing CoS Profiles:**

1. In the LA-210 View window, select the System view.
2. On the menu bar, click **Configuration > QoS**.

   The QoS menu appears.
3. Select **Marking Profiles**.

   The Marking Profiles list appears.

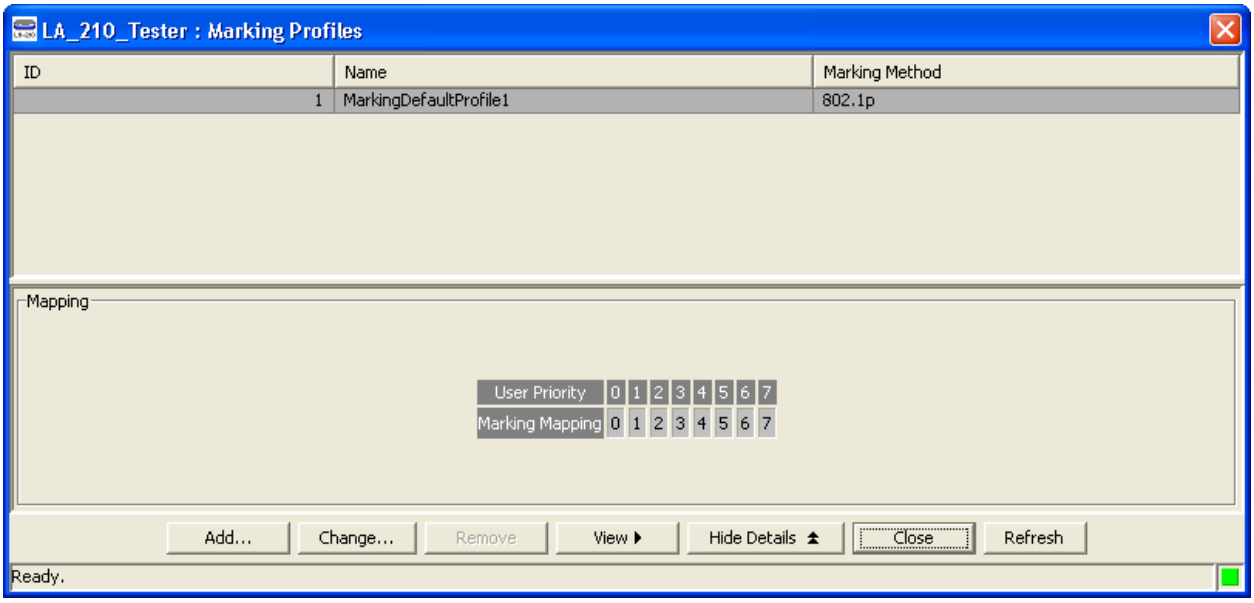


Figure 3-15. Marking Profiles List

➤ **To add a Marking profile:**

1. In the Marking Profiles list, click **Add**.

   The Add Marking Profiles dialog appears.

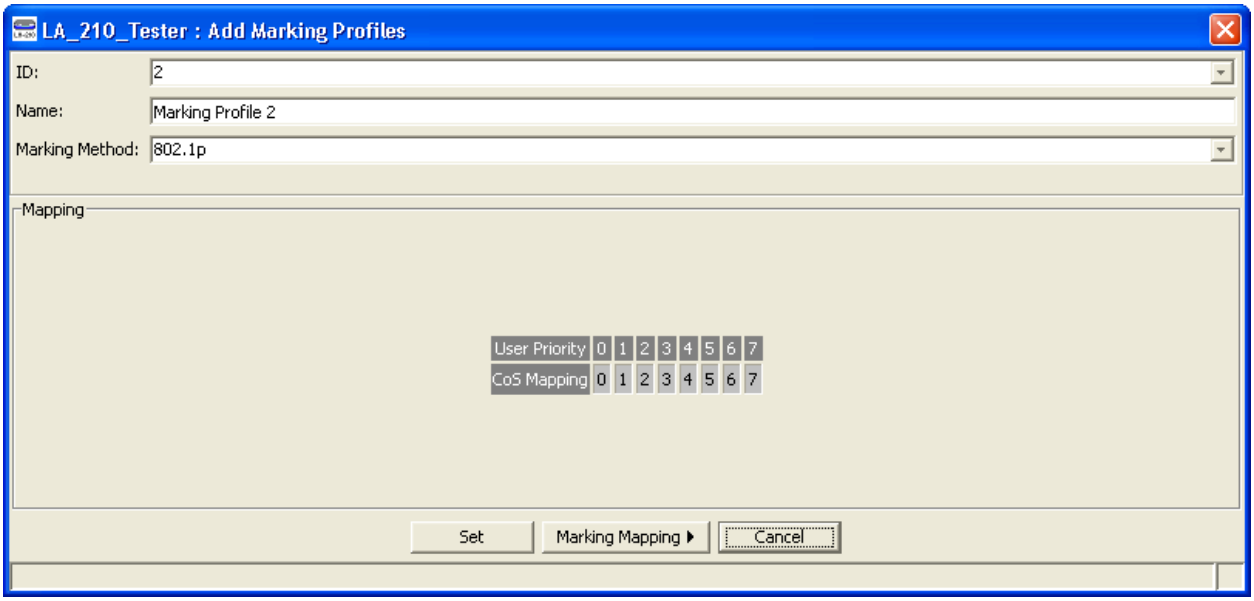


Figure 3-16. Adding Marking Profile

2. Configure the parameters as detailed in *Table 3-9* and then click **Set**.

   The Marking profile is added.

Table 3-9. Marking Profile Parameters

Parameter	Possible Values / Remarks
ID	Selects a Marking profile identification number. **1–8**
Name	Assigns a nam to the ingress bandwidth profile. String of up to 20 characters **Default: MarkingProfile<ID>**
Marking Method	Defines the Committed Information Rate (CIR) for the current profile. The CIR specifies a bandwidth with committed service guarantee ("green bucket" rate). **802.1p** **DSCP** **IP Precedence** **Default: 0**

➤ **To map Marking profiles to user priorities:**

1. In the map, select the desired Marking values that are associated with user priorities.
   - To select multiple Marking Map values, press and hold <**Ctrl**> and click the desired Marking Mapping values.
2. To modify the Marking map values, click **Marking Mapping** and then select a value between **0 (lowest priority)** and **7 (highest priority)**.
3. Click **Set**.

   The new Marking Mapping values are set.

➤ **To edit an existing Marking profile:**

1. In the Marking Profiles list, select the desired Marking profile and click **Change**.

   The Change Marking Profiles dialog appears. This screen is identical with the Add Marking Profiles screen, only the ID field is read-only.

2. Edit the parameters as desired and then click **Set**.

   The Marking Profile parameters are updated

➤ **To refresh the Marking Profiles list:**

- In the Marking Profiles list, click **Refresh**.

  The Marking Profiles list is updated.

➤ **To remove an existing Marking profile:**

- In the marking Profiles list, select the desired Marking profile and click **Remove**.

  The selected Marking profile is removed from the list.

Note *One Marking profile must remain listed and cannot be deleted.*

Defining Internal Queue Profiles

The section below explains how to view, add, edit and remove Internal Queue profiles for a flow.

➤ **To view existing Internal Queue Profiles:**

1. In the LA-210 View window, select the System view.
2. On the menu bar, click **Configuration > QoS**.

   The QoS menu appears.

3. Select **Internal Queue Profiles**.

   The Internal Queue Profiles list appears.

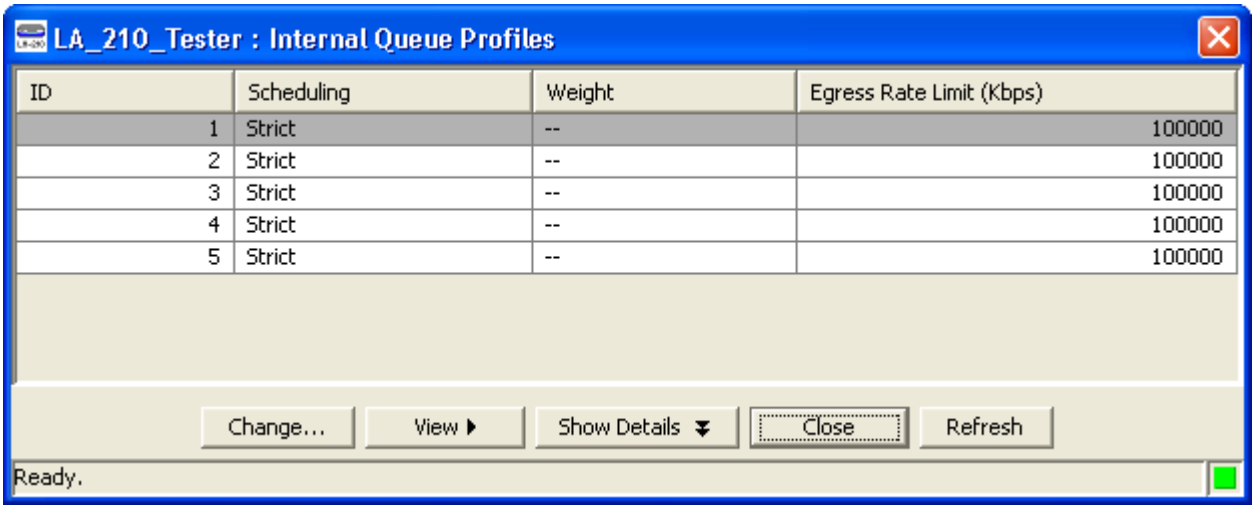


Figure 3-17. Internal Queue Profiles List

➤ **To edit an Internal Queue profile:**

1. In the Internal Queue Profiles list, select the desired Internal Queue profile and click **Change**.

   The Change Internal Queue Profile screen appears.

2. Edit the parameters as detailed in *Table 3-10* and then click **Set**.

   The Internal Queue Profile parameters are updated.

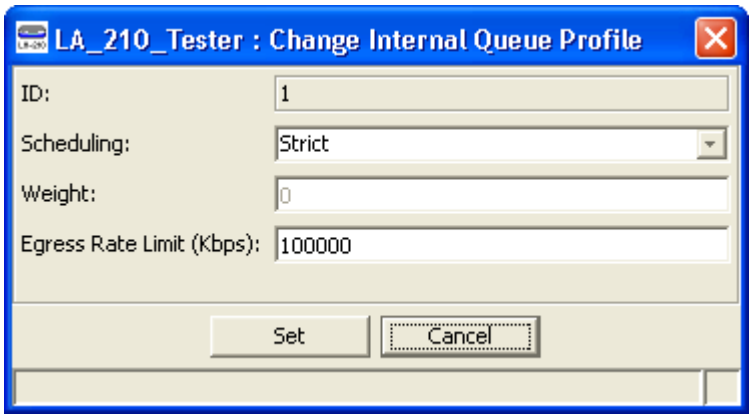


Figure 3-18. Internal Queue Profile Parameters Screen

Table 3-10. Internal Queue Profile Parameters

Parameter	Possible Values / Remarks
ID	Selects an Internal Queue profile identification number. **1–8**
Scheduling	Defines the queue scheduling method. Currently, if one of the internal queues is configured to the WFQ mode, the queues with the higher priority cannot be configured to the strict mode. **Strict –** High-priority queues that are always serviced first. If a lower-priority queue is being serviced and a packet enters a higher queue, that queue is serviced immediately. **WFQ** – Weighted Fair Queuing, if one port does not transmit, its unused bandwidth is shared by the 'transmitting' queues according to the assigned weight. **Default: Strict** ***Note**: In configurations with Strict and WFQ queues, the WFQ frames are transmitted only after the transmission of frames associated with the Strict queues is completed.*
Weight	Determines the weight of an internal queue when the scheduling weight is configured to WFQ **3–110** **Default: 3**

Parameter	Possible Values / Remarks
Egress Rate Limit (Kbps)	Defines the length of the internal queue length. **0 –32** **Default: 10**

➤ **To refresh the Internal Queue Profiles list:**

- In the Internal Queue Profiles list, click **Refresh**.

  The Internal Queue Profiles list is updated.

Adding, Editing and Removing Flows

When adding a flow, you have to first choose the flow interface where the flow starts, and set the flow key and configure the defaults. Only then you add the flow and configure the flow parameters.

➤ **To choose the flow interface and to define the flow key and the defaults:**

1. In the LA-210 View window, select the System view.
2. On the menu bar, click **Configuration > Flows**.

   The Flows screen appears.

oNote *The Flows menu is unavailable if **Application Mode** in the System Parameters menu is set to **Bridge**.*

3. In the Flows screen, in the interface list to the left, select the desired Ethernet interface.

   Parameters associated with the selected interface appear as illustrated in *Figure 3-19*.

4. Set the parameters as detailed in *Table 3-11* and then click **Apply**.

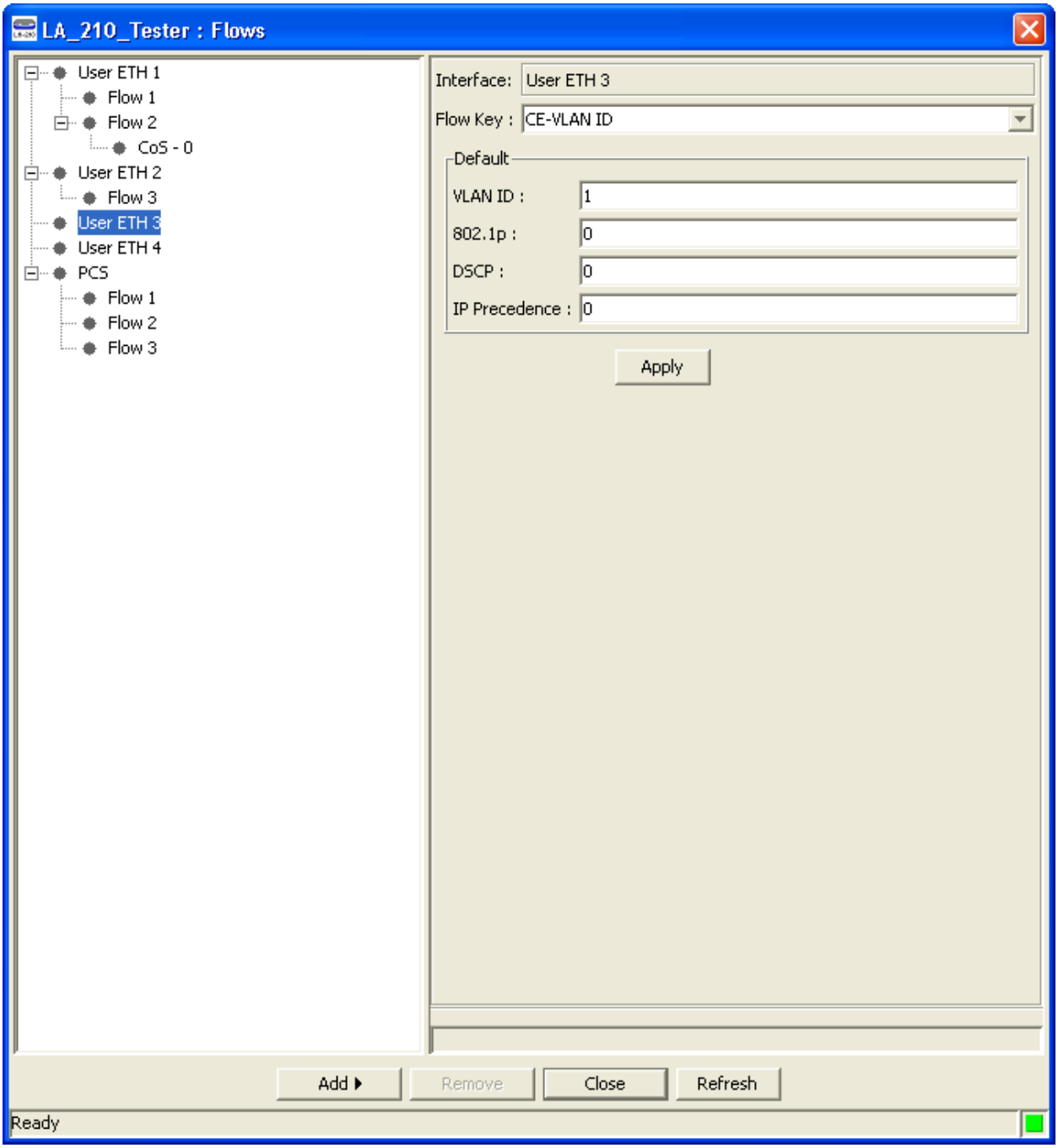


Figure 3-19. Flows Screen

Table 3-11. Flows Parameters

Parameter	Possible Values / Remarks
Interface	The selected Ethernet port Read-only

Parameter	Possible Values / Remarks
Flow Key	Determines the field used by the classifier for mapping. • **CE-VLAN ID** (flow will be based on list of CE-VLANs), • **CE -802.1p** (flow will be based on a list of CE-VLAN P-bit values) • **DSCP** (flow will be base on a list of DSCP values) diffServ, IP Precedence (flow will be base on TOS Precedence bits (TOS0-2) • **IP Precedence** **Default: CE-VLAN ID**
Defaults	**Possible Values / Remarks**
VLAN ID	The default VLAN Identifier used for mapping purpose when the flow key is **CE-VLAN ID** and frames arrive without VLAN tag. **1 – 4094**
802.1p	Default 802.1p value used for classification purposes when the flow key is CE - 802.1p and a frame arrives without VLAN TAG - Or - Used for CoS mapping with the Ingress Priority Method set to 802.1p and a frame arriving without VLAN tag **0 – 7**
DSCP	Default DSCP value, used for mapping when the flow key is DSCP and a frame arrives without IP Header - Or - Used for CoS mapping when the Ingress Priority Method = DSCP and a frame arrives without IP header. **0 – 63**
IP Precedence	Default IP Precedence value used for mapping purpose when the flow key is IP Precedence and a frame arrives without IP Header – Or – used for CoS mapping when the Ingress Priority Method = IP Precedence and a frame arrives without IP header. **0 – 7**

➤ **To add the flow:**

1. Verify that the intended interface is selected and click **Add**.

   The Add Flow screen appears.

2. Set the parameters as detailed in *Table 3-12* and then click **Set**.

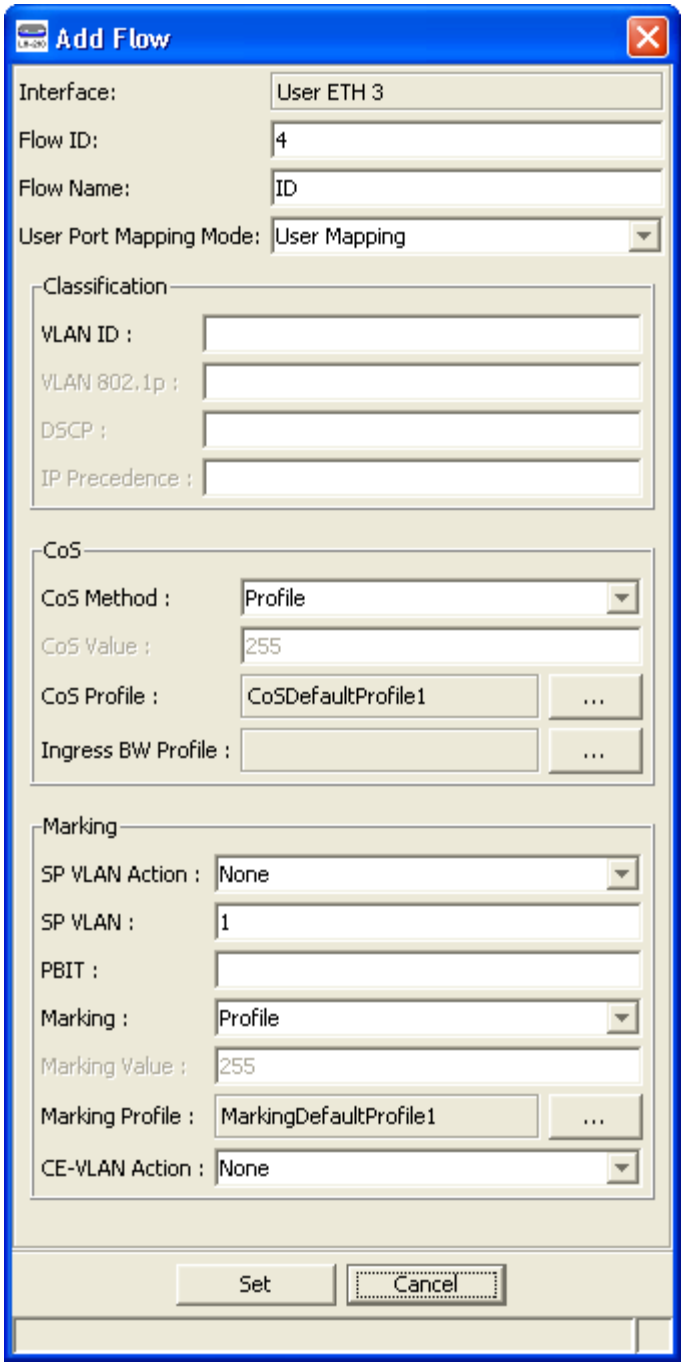


Figure 3-20. Adding a Flow

Table 3-12. Flow Parameters

Parameter	Possible Values / Remarks
Interface	The selected Ethernet port where the flow starts. **User ETH-1 – User ETH-4**
Flow ID	The flow ID, automatically assigned the flow is added.
Flow Name	Assigns a name to the selected flow. **Default: ID**

Parameter	Possible Values / Remarks
User Port Mapping Mode	Determines if the flow is composed of user defined ranges or from unclassified frames. **Unclassified** **User Mapping** **Default: User Mapping**
VLAN ID	Defines the members of a VLAN to be mapped to the flow. **1 – <highest VLAN ID assigned (max. 4094)** **Default: No members**
VLAN 802.1p	Defines the members of a VLAN P-bit to be mapped to the flow. **0 – <highest VLAN ID assigned (max. 7)** **Default: No members**
DSCP	Defines the members of a DSCP/TOS priority bit to be mapped to the flow. **0 – 64** **Default: No members**
IP Precedence	Defines the members of an IP Precedence to be mapped to the flow. The IP precedence is derived from the TOS bits 0-2 precedence. **0 – 7** **Default: No members**
CoS Method	Defines the method to classify frames to specific services. **Fixed** **Profile** **Default: Profile**
CoS Value	Fixed service CoS value **0 – 7** **Default: 0**
CoS Profile	The name of the CoS profile **Default: CoSDefaultProfile1**
Ingress BW Profile	Ingress Bandwidth Profile index **Unfined** **DefaultIngressBW1** **Default: Undefined**
SP VLAN Action	Defines the SP-VLAN action for the current flow. **None** **Stack** **Default: Stack** ***Note:*** *This parameter displays for UNI ports only.*
SP VLAN	The VLAN that will be added to the flow when it egresses from the network. **0, 1 – 4094** **Default: 0 (no VLAN specified)** ***Note:*** *This parameter displays for UNI ports only.*

Parameter	Possible Values / Remarks
Marking	The method defined for marking, either using an encoding table defined per flow or using a fixed value. **Fixed** - Fixed priority value will be marked on SP-TAG. **Profile** - Marking will be derived from the marking profile attached to the Flow–MIB value 255. ***Note:*** *This parameter displays for UNI ports only.*
Marking Value	An index to the Marking profile. **1 – 8** **Default: 1**
Marking Profile	
CE-VLAN Action	Defines the CE VLAN action for the current flow. **None** **Stack** **Swap** **Default: Stack** ***Note:*** *This parameter appears for UNI ports only.*

➤ **To configure an existing flow:**

1. Select the desired flow in the Interface list to the left.

   The associated flow parameters appear.

2. Modify the desired parameters as detailed in *Table 3-12* and then click **Apply**.

   The relevant parameters are modified.

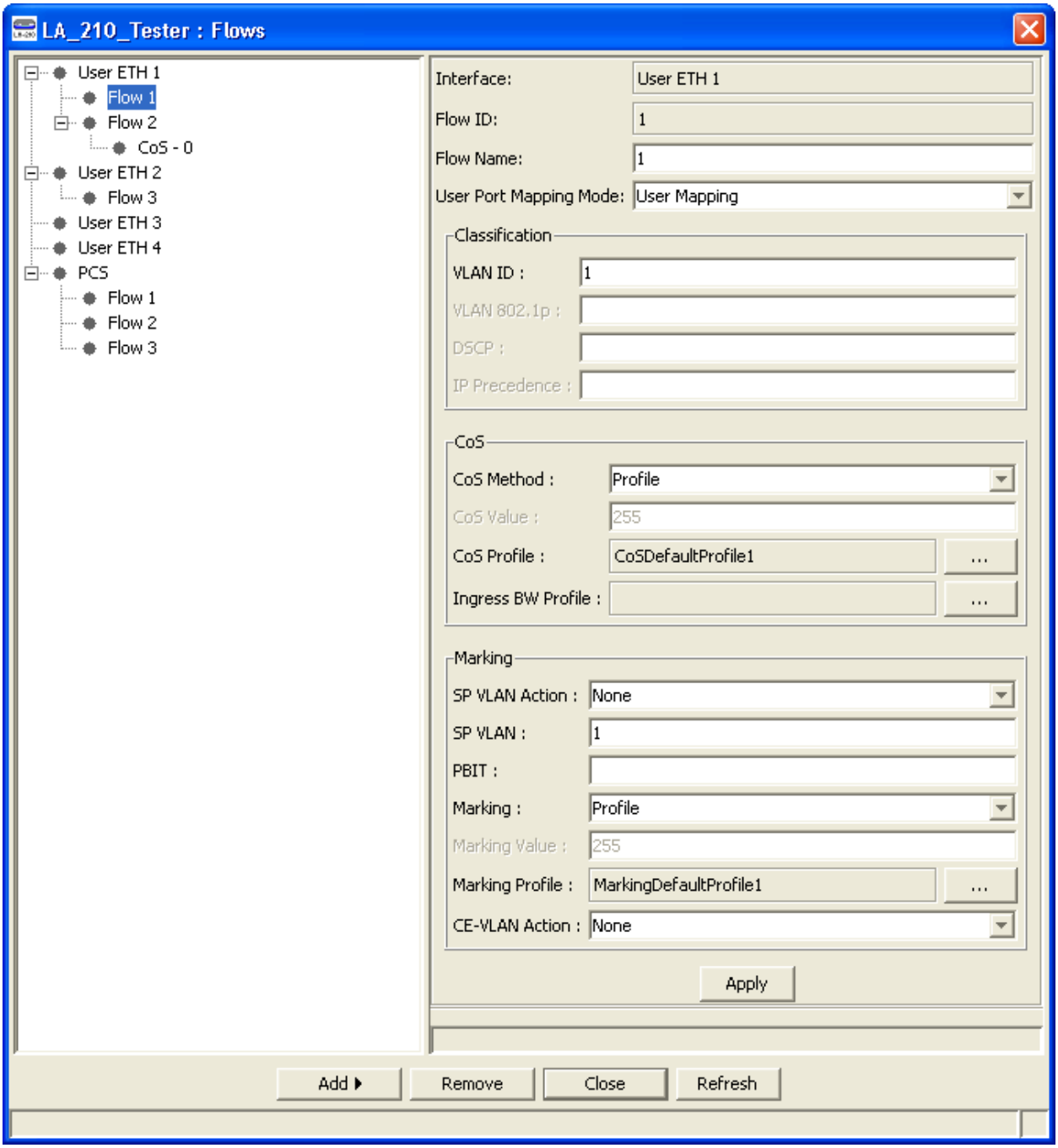


Figure 3-21. Modifying an existing Flow

➤ **To update the Flow Parameters screen:**

1. Select the desired flow in the Interface list.

   The flows appear listed.

2. Click **Refresh**.

   The selected flow's parameters are updated with the current flow parameters.

➤ **To remove a flow:**

1. Select the desired flow in the Interface list.

   The flows appear listed.

2. Click **Remove**.

   The selected flow is removed.

Configuring OAM (CFM)

This application supports the RAD proprietary OAM (CFM). When selecting the OAM menu, a message indicates that the Standard OAM is not supported.

➤ **To define OAM flows:**

1. In the LA-210 View window, select the System view.
2. On the menu bar, click **Configuration > OAM (CFM)**.

   A list of currently configured (OAM) flows appears.

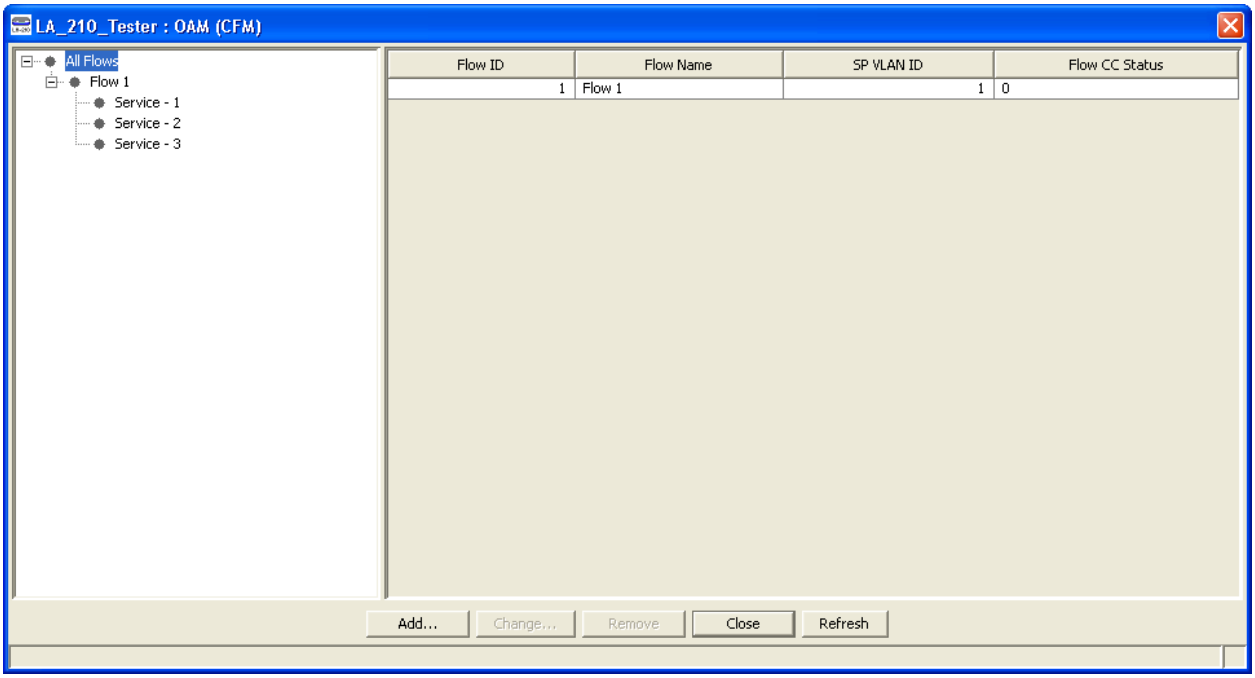


Figure 3-22. List of current Flows

➤ **To add a flow:**

1. In the OAM List screen, click <**Add**>.

   The Add Flow dialog appears (*Figure 3-23*).

2. Configure the parameters as outlined in *Table 3-13*.
3. Click <**Set**>.

   The flow is added with three services associated.

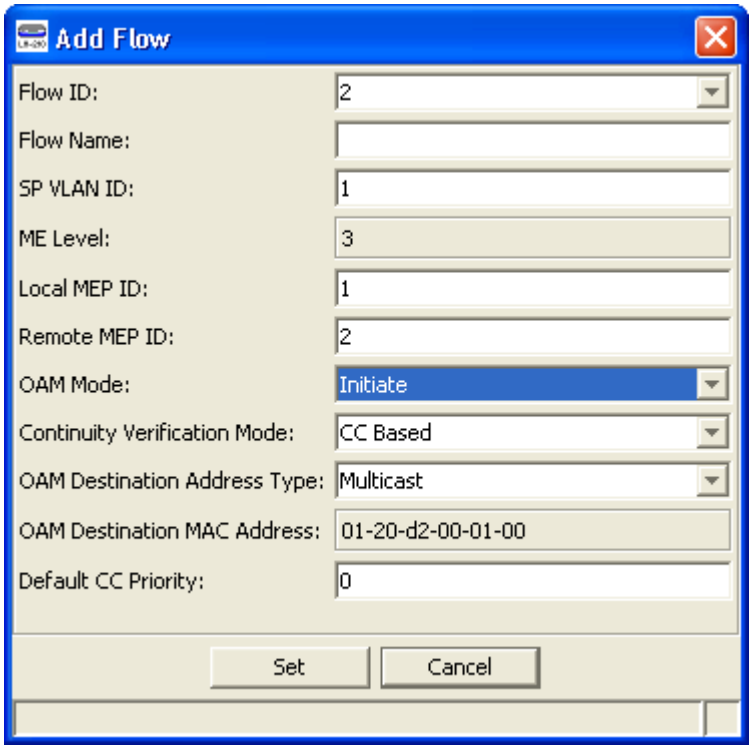


Figure 3-23. Adding a Flow (OAM)

Table 3-13. (OAM) Flow Parameters

Parameter	Possible Values / Remarks
Flow ID	Up to 8 flows can be added. Select the flow ID from the drop-down list. **1–8**
Flow Name	Assign a flow name
SP VLAN ID	Specify the VLAN used to send the OAM for the specified Maintenance Entity Group (MEP). **1–4094** **Default: 1**
ME Level	The Maintenance Entity (OAM Domain) level **1–7** Read-only
Local MEP ID	Indicates the maintenance entity group's end point. **0–8191** **Default: 1**
Remote MEP ID	The Remote MEP ID is the ID that incoming OAM messages will be identified by. Every unit's ID must remain unique. The local and remote ID must therefore not be identical. **0–8191**

Parameter	Possible Values / Remarks
OAM Mode	Determines the OAM behavior. **Disabled**: No CC performed **Initiate**: The unit will initiate and respond to OAM messages **React**: The unit will respond to OAM messages, but not initiate them. **Default: Disabled**
Continuity Verification Mode	Determines the CC behavior. **LB Based** is used only for RAD proprietary. **LB Based** **CC Based** **Default: Disabled** ***Note**: This parameter is available in Initiate/React OAM mode.*
OAM Destination Address Type	**Unicast** **Multicast** **Default: Unicast** ***Note**: This parameter is available in Initiate OAM mode.*
OAM Destination MAC Address	Determines the MAC address sent in OAM messages, configurable only for Unicast MAC Address. **Default: 01-20-d2-00-01-00 + MD Level in RAD Proprietary, Standard OAM MAC Address + MD Level in Standard.**
Default CC Priority	The priority CFM messages will be sent if no service is defined on the flow. If a service is defined, the CC will be performed at the highest priority service on the flow. ***Note**: This parameter is available in Initiate OAM mode.*

➤ **To edit a flow:**

1. In the OAM List screen, select the desired flow and click ‹**Change**›.

   The Change Flow dialog appears. The Change Flow dialog is identical with the Add Flow dialog (*Figure 3-23*).

2. Configure the parameters as outlined in *Table 3-13*.
3. Click ‹**Set**›.

   The flow has been modified.

➤ **To edit a service:**

1. Before you can edit a service, set the OAM mode to **React** or **Initiate**, otherwise the service parameters will be read only.
2. Select the desired service.

   The associated service parameters appear.

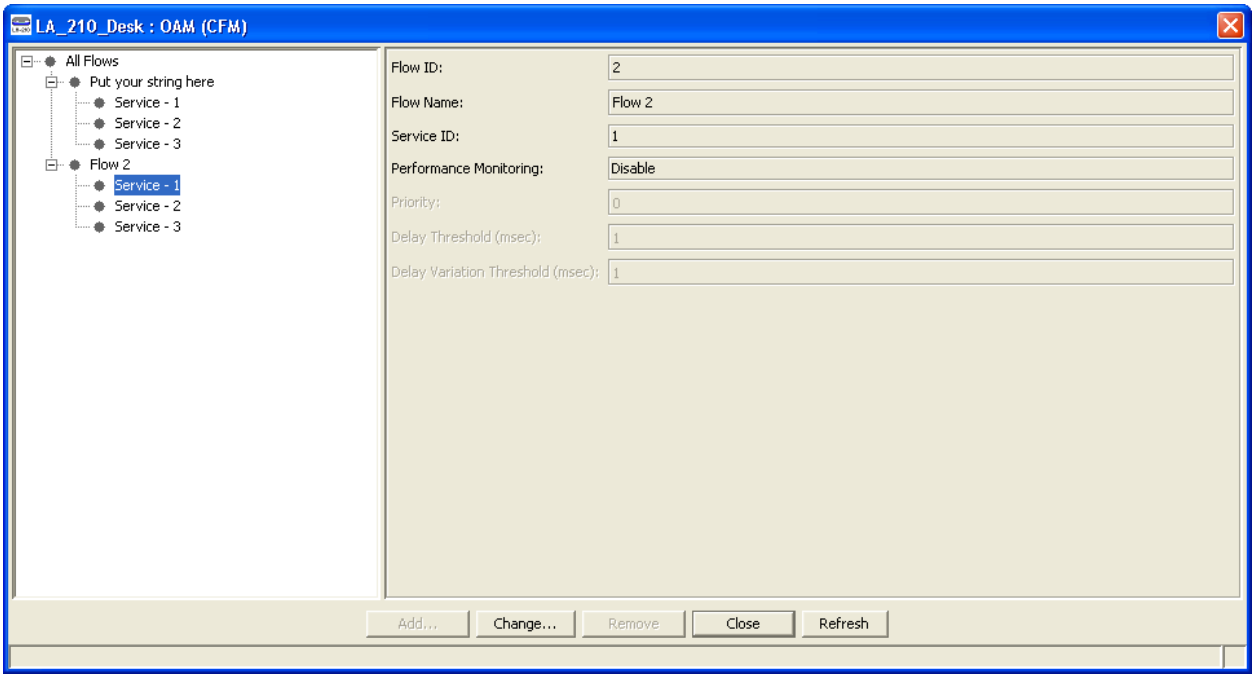


Figure 3-24. OAM Service Dialog

3. Click ‹**Change**›.

   The Change Service dialog appears (*Figure 3-25*).

4. Enable **Performance Monitoring** to make parameters available for editing.

5. Set the priority and the thresholds as outlined in *Table 3-14* and then click ‹**Set**›.

   The service has been reconfigured.

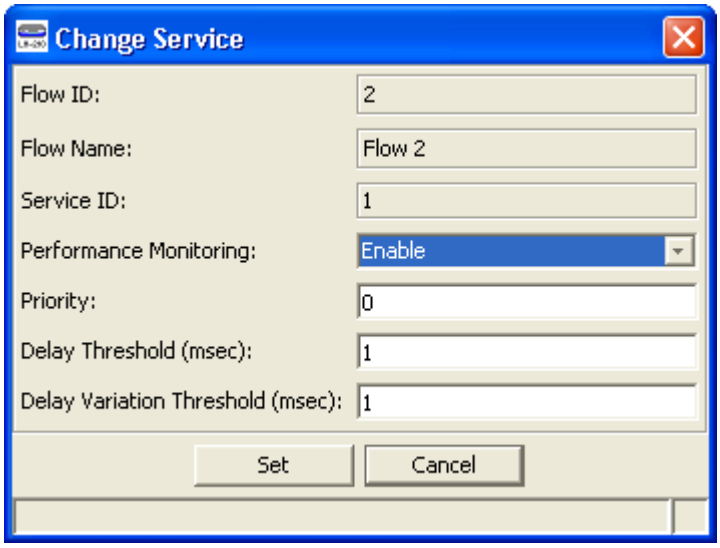


Figure 3-25. Change Service Dialog

Table 3-14. Change Service Dialog

Parameter	Possible Values / Remarks
Flow ID	The ID of the flow that this service belongs to. Read-only
Flow Name	The name of the flow that this service belongs to. Read-only
Service ID	The ID of the service. Each flow is associated with three services. **1–3** Read-only
Performance Monitoring	Enables/disables Performance Monitoring **Enable** **Disable** **Default: Disable**
Priority	Determines the P bit value sent inside this OAM message that originates from this service. **0–7** **Default: 0**
Delay Threshold (msec)	Determines the delay threshold for the specified service. **1–1000** **Default: 0**
Delay Variation Threshold (msec))	Determines the delay variation threshold for the specified service **1–1000** **Default: 0**

Configuring Bridge Parameters

In Bridge mode, an internal bridge can be defined that connects the LA-210 unit's ports. Configure the bridge to properly process the VLAN tags to maintain priority of the data flows.

The bridge operates in transparent mode (learning is disabled) or filtered mode (learning and filtering are enabled).

➤ **To verify that LA-210 operates in Bridge mode**

1. In the LA-210 View window, select the System view.
2. On the menu bar, click **Configuration > System Parameters**.

   The System Parameters dialog appears displaying the current mode.

➤ **To define bridge parameters**

1. In the LA-210 View window, select the System view.
2. On the menu bar, click **Configuration > Bridge**.

   The Bridge menu appears.

Note *The Bridge menu is unavailable if* ***Application Mode*** *in the System Parameters menu is set to* ***Flows****.*

3. From the Bridge menu, choose **Parameters**.

   The Bridge Parameters dialog appears.

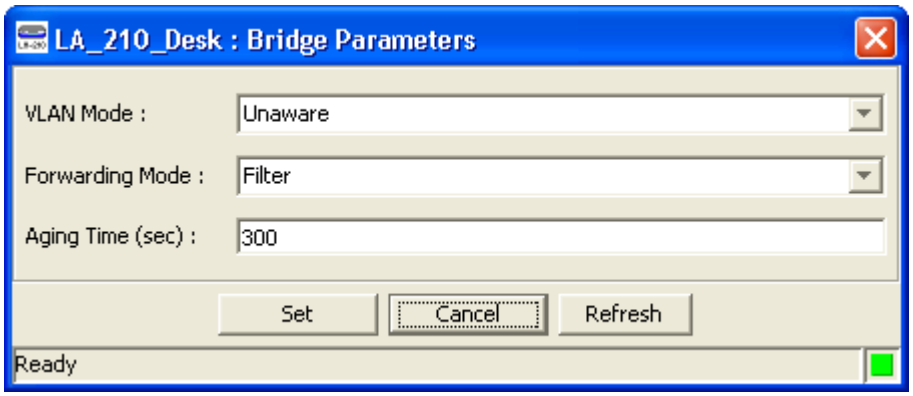


Figure 3-26. Bridge Parameters Screen

Table 3-15. Bridge Parameters

Parameter	Possible Values / Remarks
VLAN Mode	Forwarding is based on MAC address only or on VLAN+MAC. **Aware** – Bridge operates according to 802.1Q **Unaware** – Operates according to 802.1D. **Default: Unaware**
Forwarding Mode	Determines whether the bridge learns MAC addresses. **Filter** – Learning and filtering are enabled **Transparent** – No learning is performed. Each packet received is forwarded to all other ports automatically, unless static MAC is used. **Default: Filter**
Aging Time (sec)	Aging time for entries in the MAC table. If the aging time elapses, and no frame has been received from the MAC, it is erased from the MAC table. **300–4080** **Default: 300**

➤ **To define bridge ports:**

1. In the LA-210 View window, select the System view.
2. On the menu bar, click **Configuration > Bridge**.

   The Bridge menu appears.
3. From the Bridge menu, choose **Ports**.

   The Bridge Ports list appears.

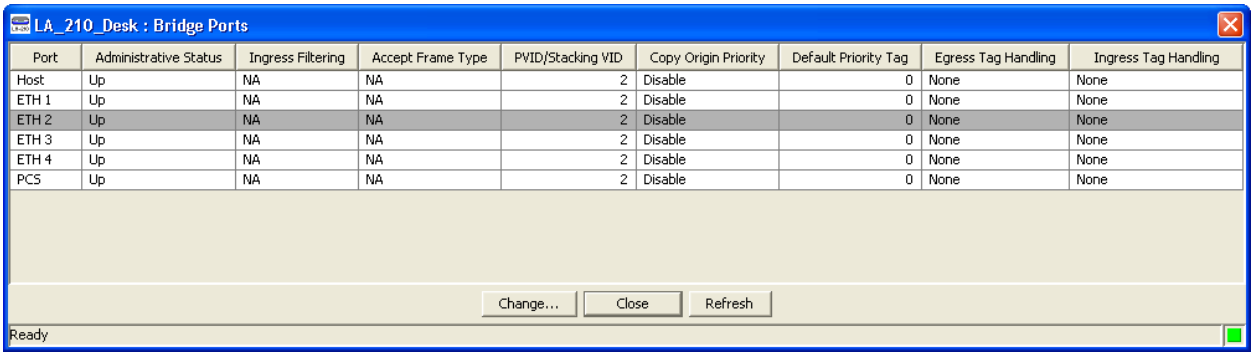

LA_210_Desk : Bridge Ports
Port
Administrative Status
Ingress Filtering
Accept Frame Type
PVID/Stacking VID
Copy Origin Priority
Default Priority Tag
Egress Tag Handling
Ingress Tag Handling
Host Up NA NA 2 Disable 0 None None
ETH 1 Up NA NA 2 Disable 0 None None
ETH 2 Up NA NA 2 Disable 0 None None
ETH 3 Up NA NA 2 Disable 0 None None
ETH 4 Up NA NA 2 Disable 0 None None
PCS Up NA NA 2 Disable 0 None None
Change...
Close
Refresh
Ready

Figure 3-27. Bridge Port List

4. Choose the desired port, add it to the bridge and configure the associated parameters as detailed in *Table 3-16*.

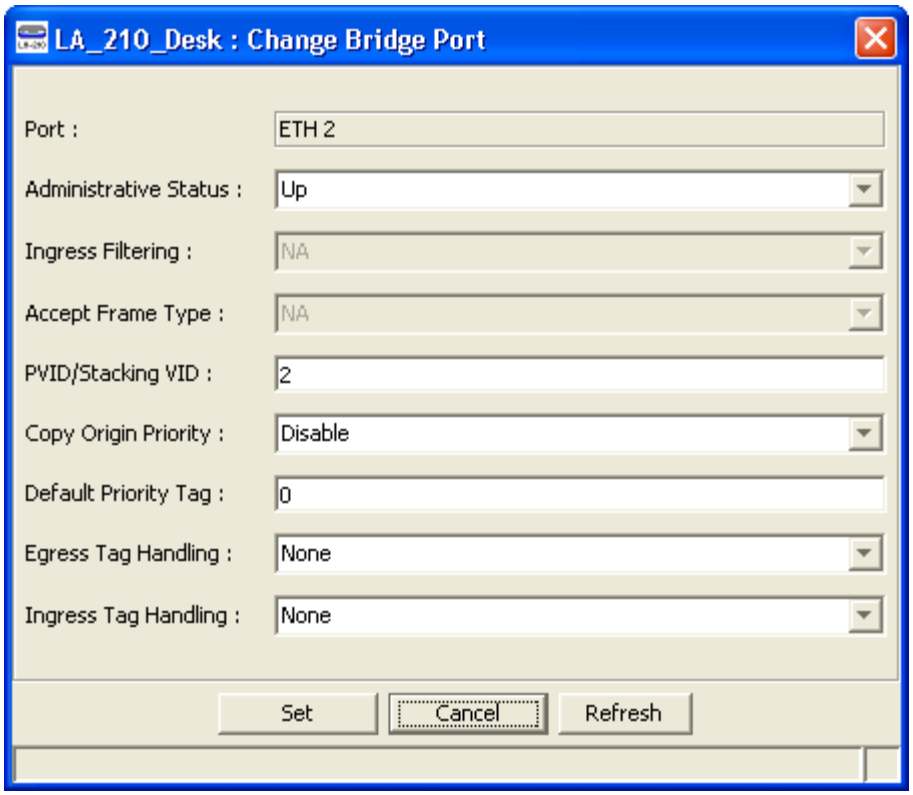


Figure 3-28. Bridge Port Screen

Table 3-16. Bridge Port Parameters

Parameter	Possible Values / Remarks
Port	The selected port
Administrative Status	Specifies if this port is part of the bridge or not. **Up** (part of the bridge) **Down** (not part of the bridge) **Default: Up**
Ingress Filtering	When **Enabled**, the device discards incoming frames for VLANs which do not include this port in its member set. When **Disabled**, the port accepts all incoming

Parameter	Possible Values / Remarks
	frames. **Enable** **Disable** **Default: Disable** ***Note**: Available only if the bridge operates in VLAN-Aware mode.*
Accept Frame Type	**All** specifies that untagged frames received on this port are accepted and assigned to the PVID for this port. **Tag Only** specifies that the device discards untagged frames **All** **Tag Only** **Default: All** ***Note**: Available only if the bridge operates in VLAN-Aware mode.*
PVID / Stacking VID	This is the Port VID, the VLAN ID assigned to untagged frames or priority-tagged frames received on the chosen port. If Stacking is enabled, this is the tag to be added. **1–4094** **Default: 2**
Copy Original Priority	Copies the priority from the original frame, when stacking an additional tag **Enable** **Disable** **Default: Disable**
Default Priority Tag	Default VLAN frame priority. Applies to untagged frames or stacked tags, when the Copy Original Priority function is disabled. **0–7** **Default: 0**
Egress Tag Handling	**Stacking** adds the PVID to every frame transmitted from the port. **Stripping** removes the first VLAN tag from every transmitted frame, on the egress of the port. **Stacking** **Stripping** **None** **Default: None**
Ingress Tag Handling	Stacking adds the PVID to every frame received on the ingress of the port. Stripping removes the first VLAN tag from every received frame, on the ingress of the port. **Stacking** **Stripping** **None** **Default: None**

➤ **To update the Bridge Port list:**

- In the Bridge port list (*Figure 3-27*), click **Refresh**.

  The Bridge Port list is updated.

Configuring the VLAN Membership

You can assign bridge ports to VLANs, thus defining a VLAN membership for that port. This section explains how to add, modify or remove a VLAN membership.

➤ **To add a VLAN membership:**

1. In the LA-210 View window, select the System view.
2. On the menu bar, click **Configuration > Bridge**.

   The Bridge menu appears.
3. First verify that **VLAN Mode** is set to **Aware**. To do so, in the Bridge menu, choose **Parameters**.

   The Bridge Parameters dialog appears, displaying the VLAN Mode parameter (*Figure 3-26*).
4. Click <**Cancel**> to return to the Bridge menu.
5. From the Bridge menu, choose **VLAN Membership**.

   A list of VLAN memberships appears.
6. Click <**Add**>.

   The Add VLAN Membership dialog appears.
7. Specify the VLAN membership as detailed in *Table 3-17* and then click **Set**.

   The new VLAN membership is added to the list and the dialog closes.

Table 3-17. VLAN Membership Dialog

Parameter	Possible Values / Remarks
VLAN ID	Type the desired VLAN ID.
Tagged Ports	Defines the set of ports to transmit packets for this VLAN as tagged.
Untagged Ports	Defines the set of ports to transmit packets for this VLAN as untagged.

➤ **To edit a VLAN membership:**

1. In the LA-210 View window, select the System view.
2. On the menu bar, click **Configuration > Bridge**.

   The Bridge menu appears.
3. From the Bridge menu, choose **VLAN Membership**.

   A list of VLAN memberships appears.
4. Select the desired VLAN membership and click <**Change**>.

   The Change VLAN Membership dialog appears and the parameters can be edited.
5. Modify the desired parameters as detailed in *Table 3-17* and then click <**Set**>.

   The VLAN membership has been modified and the dialog closes.

Configuring MAC Tables

MAC addresses associated with physical ports can be associated with the bridge ports.

➤ **To view the MAC table:**

1. In the LA-210 View window, select the System view.
2. On the menu bar, click **Configuration > Bridge**.

   The Bridge menu appears.
3. From the Bridge menu, choose **MAC Table**.

   The MAC table appears.

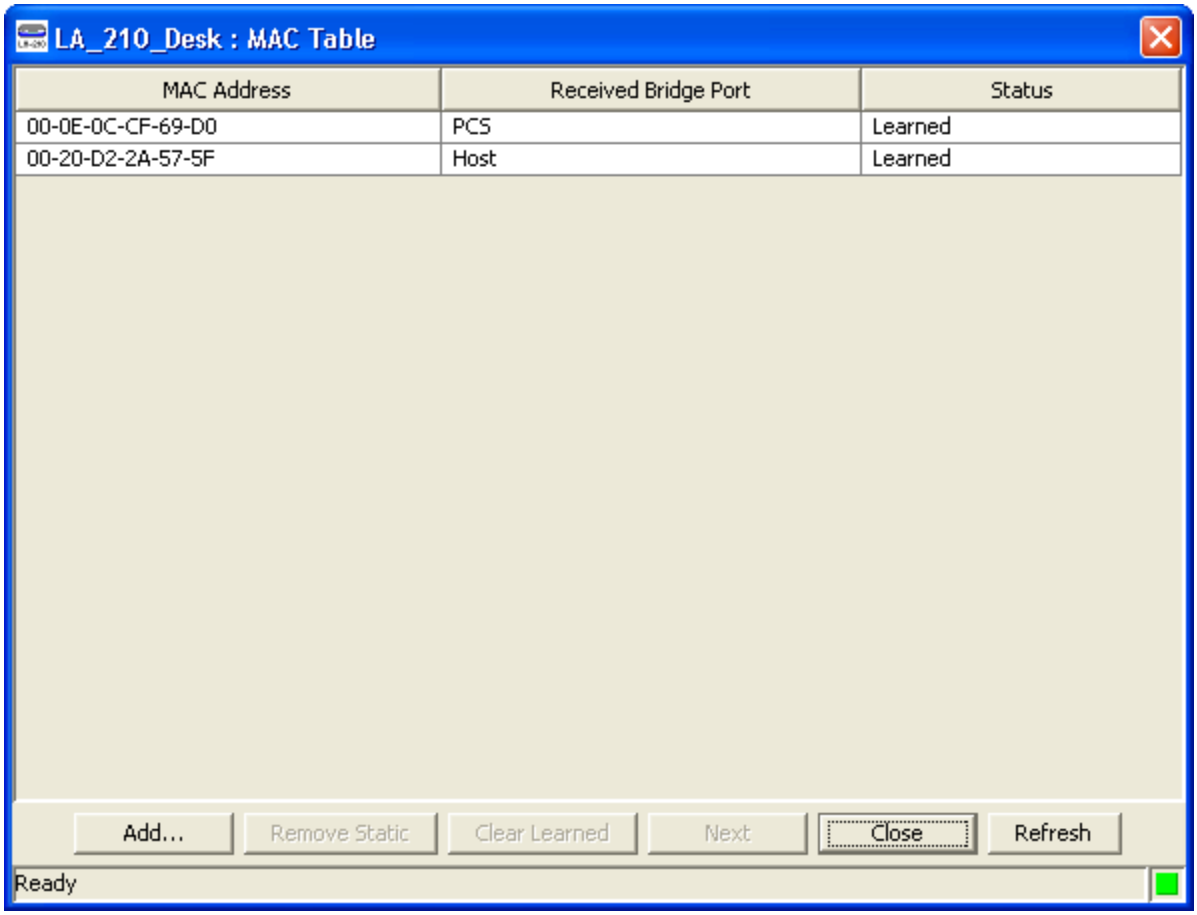


Figure 3-29. MAC Table

➤ **To add a MAC table entry:**

1. In the MAC Table screen, click <**Add**>.

   The Add MAC Entry dialog appears (*Figure 3-30*).
2. Add a MAC address and choose the Bridge port to associate it with.
   - Select **MAC Address**, and enter a new MAC address.
   - Select **Receive Bridge Port**, and choose the interface that this MAC address is attached to.

3. Click <**Apply**>.

   The new MAC entry is added to the list.

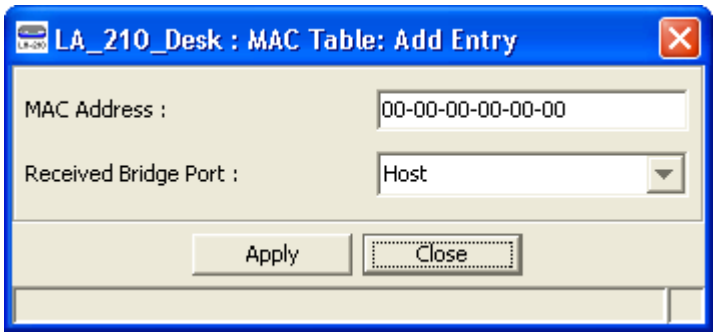


Figure 3-30. Adding MAC Table Entry

➤ **To refresh the MAC table:**

- In the MAC Table screen, select **Refresh**.

  The MAC table is updated.

➤ **To remove a static MAC address:**

1. In the MAC Table screen, select the desired entry.
2. Click **Remove Static**.

   The selected MAC table entry is deleted.

➤ **To clear the MAC table:**

- In the MAC Table screen, select **Clear Learned**.

  The MAC table is clear, only the MAC addresses for Host and PCS remain listed, which cannot be deleted.

Configuring QoS

LA-210 supports the following three methods of classification.

- 802.1 priority mapping
- DSCP priority mapping, using tag values
- Priority mapping per bridge port.

➤ **To classify the QoS:**

1. In the LA-210 View window, select the System view.
2. On the menu bar, click **Configuration > QoS**.

   The QoS menu appears.
3. Choose **Classification**.

   The Classification dialog appears.

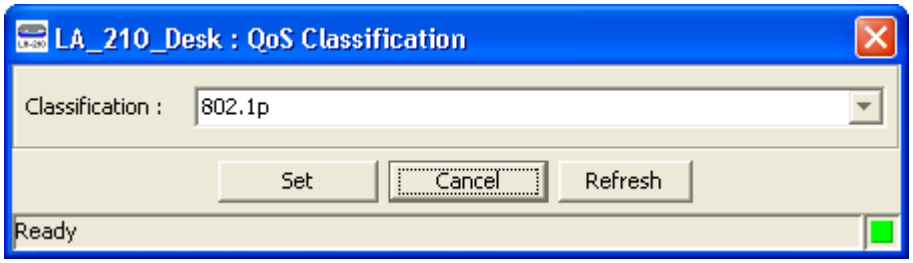


Figure 3-31. QoS Classification

4. Select the desired classification and click **Set**.

   The selected classification appears listed.

➤ **To map the QoS (802.1p):**

1. In the LA-210 View window, select the System view.
2. On the menu bar, click **Configuration > QoS**.

   The QoS menu appears.
3. Choose **Mapping**.

   The Mapping dialog appears.

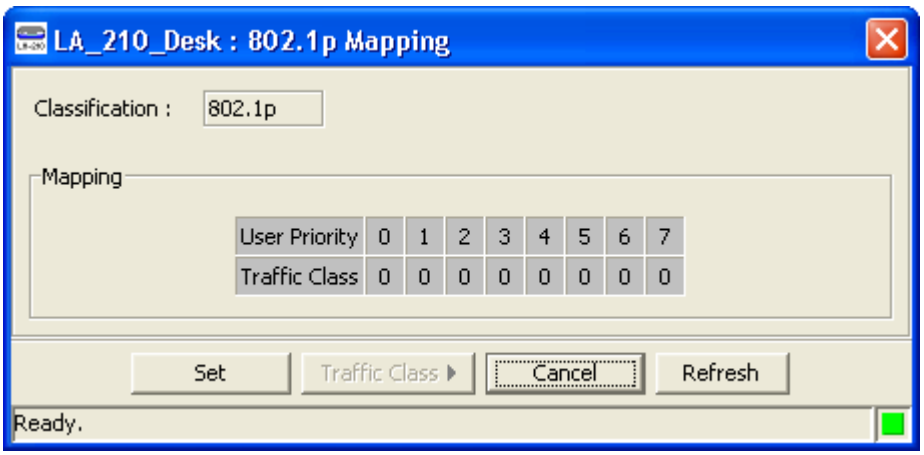


Figure 3-32. QoS Mapping

4. Select the desired user priority (**0–7**) and assign the desired traffic class (**0–3**) by clicking **Traffic Class** and choosing a traffic class to each priority. Each traffic class can be assigned to more than one priority.
5. Click <**Set**>.

   The QoS is mapped and the QoS Mapping dialog closes.

➤ **To map the QoS (DSCP):**

1. Navigate to the Mapping dialog as explained above.
2. Select the desired tag value (0–63) and assign the desired traffic class (**0–3**) by clicking <**Traffic Class**> and choosing a traffic class to each tag value. Each traffic class can be assigned to more than one tag value.

➤ **To map the QoS (Per Port):**

1. Navigate to the Mapping dialog as explained above.
2. Select the desired bridge port and assign the desired traffic class (**0–3**) by clicking ‹**Traffic Class**› and choosing a traffic class to each active bridge port. Each traffic class can be assigned to more than one active bridge port.

➤ **To update the mapping dialog**

- On the relevant QoS Mapping dialog, click ‹**Refresh**›.

  The Mapping dialog is updated.

Configuring Fault Propagation

When the network › user fault propagation is enabled, the LAN ports are deactivated when the PCS uplink becomes inactive. The Ethernet ports are re-activated once the PCS port synchronization is restored.

When the user › network fault propagation is enabled, the PCS uplink is deactivated when the LAN ports become inactive. The PCS uplink is restored once the LAN ports are re-activated.

➤ **To enable the fault propagation:**

1. In the LA-210 View window, select the System view.
2. On the menu bar, click **Configuration › Fault Propagation**.

   The Fault Propagation dialog appears.

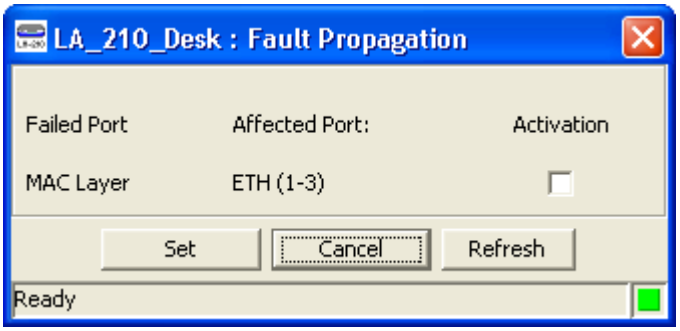


Figure 3-33. Fault Propagation

3. To enable Fault Propagation, check **Activation** and then click ‹**Set**›.

   The fault propagation is active.

➤ **To disable the fault propagation:**

1. Navigate to the Fault Propagation dialog as explained above.
2. Clear **Activation** and then click ‹**Set**›.

   The fault propagation is inactive.

3.3 Additional Tasks

RADview allows resetting the LA-210 hardware configuration. Resetting the system hardware resets the agent.

Resetting the Agent

➤ **To reset the agent:**

1. In the LA-210 View window, select the system.
2. On the menu bar, click **Configuration > Reset > HW**.

   A confirmation dialog box appears.

Figure 3-34. Reset HW Dialog Box

3. Click <**OK**> to reset.

   The agent's hardware is reset.

Resetting the Configuration

RADview/TDM allows you to reset the LA-210 parameters to default values.

➤ **To reset the configuration:**

1. In the LA-210 View window, select the system.
2. On the menu bar, click **Configuration > Reset > Configuration**.

   A confirmation message appears.

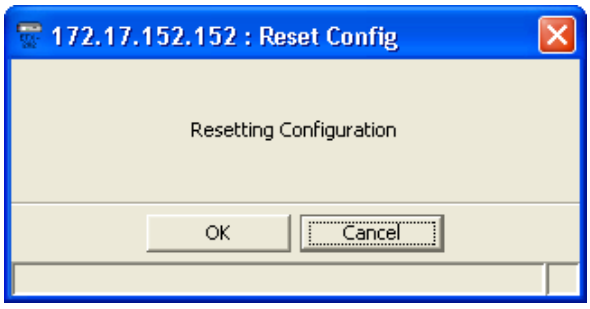


Figure 3-35. Reset HW Dialog Box

3. Click <**OK**> to reset.

   The agent's configuration is reset to its default values.

Chapter 4

Configuring a Flow-Based Point-To-Point Application

This chapter provides detailed instructions on building, configuring and using a flow-based point-to-point application.

The configuration used for the application is illustrated below. It includes a management PC, a 'movie PC' and a client PC, enabling you to screen a movie and simultaneously testing the performance at different bandwidths and priorities, using the management PC to remotely log on to LA-210 for management and monitoring.

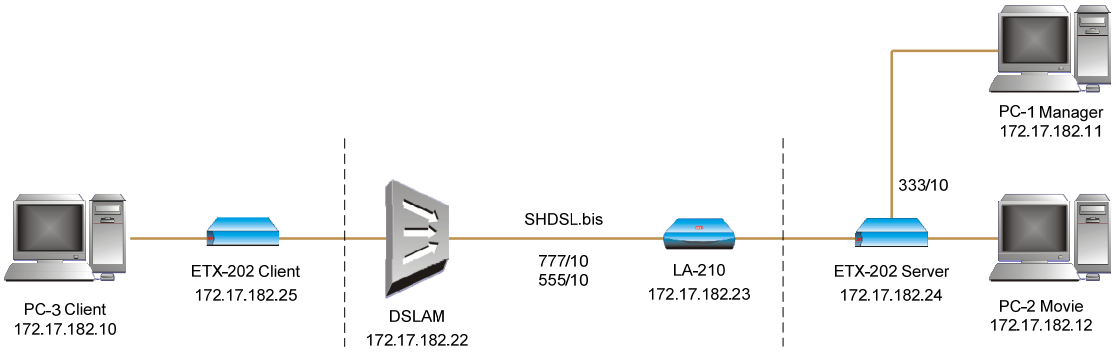


Figure 4-1. Typical Application – Network Parameters

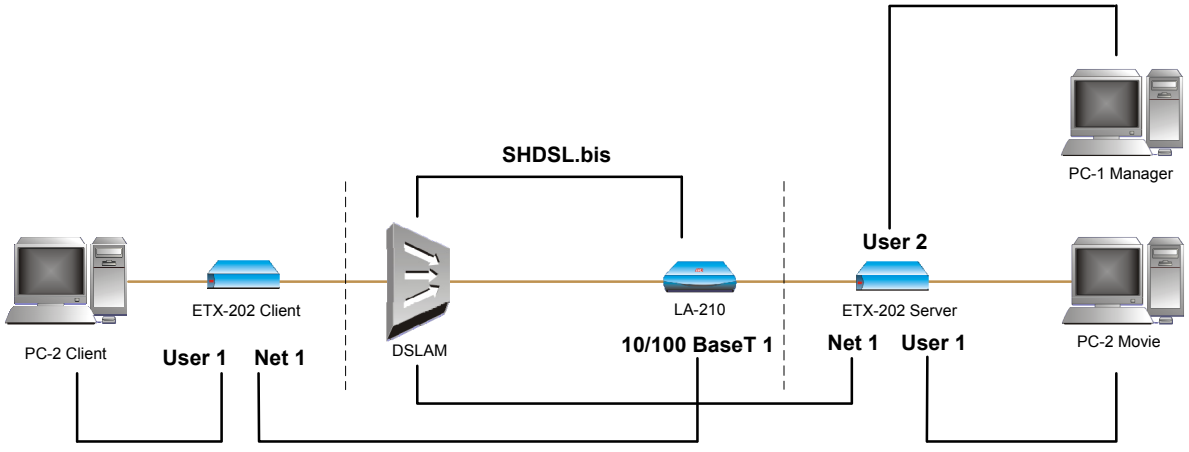


Figure 4-2. Typical Application – Assembly

For instructions on assembling the application, refer to the Installation and Operational manual.

4.1 Configuring the ETX-202 and LA-210 Units

Before you can start managing LA-210 via SNMP, the ETX-202 units and LA-210's IP settings must be configured using a terminal application.

➤ **To configure LA-210 and ETX-202 units:**

1. Connect a PC to the serial port of each unit and use a terminal application to log on to the relevant unit.
2. Configure IP settings (**Configuration>System>Host**) and take a note of the IP addresses you assign if they differ from the ones suggested in *Figure 4-1*.

   You will have to specify the IP addresses when adding or updating the corresponding item in the Network Element Browser or the SNMPc Management Console as well.
3. Verify that management access via SNMP is enabled for LA-210 (**Configuration>System>Management> Management Access**).
4. Connect the units to each other and to the network.
5. Configure the units for the desired application.

4.2 Configuration Sequence

You must configure the following to deploy LA-210 and ETX-202 units in this application:

- System parameters (host IP, default gateway, VLANs for management access)
- Flow Interface configurations
- Flows.

Table 4-1. System Configuration Summary

Device	Host IP	IP mask	Default Gateway
LA-210	172.17.182.22	255.255.255.0	172.17.182.1
DSLAM	172.17.182.23	255.255.255.0	172.17.182.1
ETX-202 (Client)	172.17.182.24	255.255.255.0	172.17.182.1
ETX-202 (Server)	172.17.182.13	255.255.255.0	172.17.182.1

Table 4-2. Flow Configuration Summary – DSLAM

Flow Interface	Flow ID	CE-VLAN-ID	Flow Interface	SP-VLAN-ID
ETH-1	1	555 777	UNI ETH-1	10

Table 4-3. Flow Configuration Summary – DSLAM

Flow Interface	Flow ID	Host Tagging	Host VLAN ID	CE-VLAN ID	Flow Interface	SP-VLAN-ID
ETH-1	1	Untagged	N/A	555 777	UNI ETH-1	10

Table 4-4. Flow Configuration Summary – LA-210

Flow Interface	Flow ID	Host Tagging	Host VLAN ID	CE-VLAN ID	Flow Interface	SP-VLAN-ID
ETH-1	1	Tagged	333	555 777	UNI ETH-1	10

Table 4-5. Configuration Summary – ETX-202 Server

Host Tagging	Host VLAN ID	Interface	Port/Stacking VID	Tag Handling
Tagged	555	User 1	777	Stack
		User 2	333	Stack

Table 4-6. Configuration Summary – ETX-202 Client

Host Tagging	Host VLAN ID	Interface	Port/Stacking VID	Tag Handling
Tagged	555	User 1	777	Stack
		User 2	555	Stack

Table 4-7. Configuration Summary – ETX-202 Client

Interface	Host Tagging	Host VLAN ID	Port/Stacking VID	Tag Handling
User 1	Tagged	555	555 777	Stack
User 2	Tagged	555	555 777	Stack

4.3 Configuring the System Parameters

This section explains how to configure ETX-202 and LA-210 units. The configuration procedure is similar for all units, except for defining different host IP addresses. For an explanation of how to select management options and save the changes, refer to the Installation and Operation Manual (hardware manual).

Configuring Host IP Parameters

You configure the host IP parameters for each unit using the terminal application as explained in the Installation and Operation (hardware) manual.

➤ To configure the host IP parameters:

Device	Host IP	IP mask	Default Gateway
LA-210	172.17.182.22	255.255.255.0	172.17.182.1
DSLAM	172.17.182.23	255.255.255.0	172.17.182.1
ETX-202 (Client)	172.17.182.24	255.255.255.0	172.17.182.1
ETX-202 (Server)	172.17.182.13	255.255.255.0	172.17.182.1

1. At the terminal, display the Host menu (Configuration›System›Host), and configure the IP address and the IP mask:
   - LA-210 host IP address – 172.17.182.22
   - ETX-202 (Client) host IP address – 172.17.182.24
   - ETX-202 (Server) host IP address – 172.17.182.25
   - IP mask – 255.255.255.0
   - Default gateway – 172.17.182.1
2. Save the changes.

Configuring ETX-202 Server and Client

In order to enable remote management of LA-210, you have to define a bridge port that allows accessing LA-210 via ETX-202 Server. The Movie PC is connected to ETX-Server's port 1 and the management station is connected to ETX-202 Server's user port 2 as illustrated in *Figure 4-2*. After configuring ETX-202 Server, you will be able to remotely log on to LA-210 using RADview.

Note *This application can use ETX-202 Version 3.5 or higher. Depending on the version in use, available menu items may vary. Do not modify any settings if you have not been instructed otherwise.*

Configuring ETX-202 Server

This section instructs you on configuring ETX-202 Server and enabling the management PC to access LA-210.

➤ To configure the VLAN settings:

1. Navigate to the Encapsulation menu (Configuration›System›Management›Host›Encapsulation).

```
                                ETX-202
Configuration>System>Management>Host>Encapsulation

 1. Host Tagging                          (Tagged)
 2. Host VLAN ID[1 - 4094]           ...  (555)
 3. Host VLAN Priority[0 - 7]        ...  (7)
 4. Security Definition              >    (All)

>
Please select item <1 to 4>
ESC-prev.menu; !-main menu; &-exit                                1 M/ 1 C
```

Figure 4-3. ETX-202 Server – Enabling Host Tagging

2. Select **Host Tagging**.

   Host tagging is enabled and additional parameters become available.

3. Select **Host VLAN** and enter **555**.

   A new host VLAN (Host VLAN ID 555) has been defined.

4. Press ‹**S**› to save this setting.

➤ To configure the bridge ports:

1. Navigate to the Bridge Port menu (Configuration›Bridge›Bridge Port).
2. Navigate to **User Port 1** and configure the respective parameters as illustrated below.

```
                                ETX-202
Configuration>Bridge>Bridge Port

    Port Label                   >    (3)
    Bridge port                  >    (User 1)
 1. Port\Stacking VID[1 - 4094]   ...  (777)
 2. Default Priority Tag [0 - 7]  ...  (4)
 3. Tag Handling                       (Stack)

Please select item <1 to 3>
F-Forward
ESC-prev.menu; !-main menu; &- exit                               1 M/ 1 C
```

Figure 4-4. ETX-202 Server User Port 1– Bridge Port Menu

3. Press ‹F› to navigate to **User Port 2** and configure the respective parameters as illustrated below.

   Bridge Port 333 on User Port 2 enables the management PC to access LA-210.

```
                                ETX-202
Configuration>Bridge>Bridge Port

    Port Label                  >    (4)
    Bridge port                 >    (User 2)
 1. Port\Stacking VID[1 - 4094]    ... (333)
 2. Default Priority Tag [0 - 7]   ... (7)
 3. Tag Handling                   (Stack)

Please select item <1 to 3>
F-Forward
ESC-prev.menu; !-main menu; &- exit                              1 M/ 1 C
```

Figure 4-5. ETX-202 Server User Port 2– Bridge Port Menu

➤ **To log off:**

- If not already done, press ‹S› to save your new settings and, then press ‹&› to terminate the connection.

Configuring ETX-202 Client

This section instructs you on configuring ETX-202 Client.

➤ **To configure the VLAN settings:**

1. Navigate to the Encapsulation menu (Configuration›System›Management›Host›Encapsulation).

```
                                ETX-202
Configuration>System>Management>Host>Encapsulation

 1. Host Tagging                        (Tagged)
 2. Host VLAN ID[1 - 4094]          ... (555)
 3. Host VLAN Priority[0 - 7]       ... (7)
 4. Security Definition             >   (All)

>
Please select item <1 to 4>
ESC-prev.menu; !-main menu; &-exit                               1 M/ 1 C
```

Figure 4-6. ETX-202 Client – Enabling Host Tagging

2. Select **Host Tagging**.

   Host tagging is enabled and additional parameters become available.

3. Select **Host VLAN** and enter **555**.

A new host VLAN (Host VLAN ID 555) has been defined.

4. Press ‹S› to save this setting.

➤ **To configure the bridge ports:**

1. Navigate to the Bridge Port menu (Configuration›Bridge›Bridge Port).
2. Navigate to **User Port 1** and configure the respective parameters as illustrated below.

```
                                ETX-202
Configuration>Bridge>Bridge Port

   Port Label                    >    (3)
   Bridge port                   >    (User 1)
 1. Port\Stacking VID[1 - 4094]     ... (777)
 2. Default Priority Tag [0 - 7]    ... (4)
 3. Tag Handling                        (Stack)

Please select item <1 to 3>
F-Forward
ESC-prev.menu; !-main menu; &- exit                                1 M/ 1 C
```

Figure 4-7. ETX-202 Client User Port 1– Bridge Port Menu

3. Press ‹F› to navigate to **User Port 2** and configure the respective parameters as illustrated below.

   Bridge port 555 connects to the Client PC and enables viewing transmitting content, for example a movie.

```
                                ETX-202
Configuration>Bridge>Bridge Port

   Port Label                    >    (4)
   Bridge port                   >    (User 2)
 1. Port\Stacking VID[1 - 4094]     ... (555)
 2. Default Priority Tag [0 - 7]    ... (5)
 3. Tag Handling                        (Stack)

Please select item <1 to 3>
F-Forward
ESC-prev.menu; !-main menu; &- exit                                1 M/ 1 C
```

Figure 4-8. ETX-202 Client User Port 2– Bridge Port Menu

➤ **To log off:**

- If not already done, press ‹S› to save your new settings and, then press ‹&› to terminate the connection.

4.4 Connecting LA-210 to the Management Station

LA-210 can be managed by the management PC, which must have RADview installed. The connection from the management PC can be established either from a local LAN or from a remote location, via a PSN connected to ETX-202 Server.

Once all units are connected, the IP addresses have been assigned ans access parameters have been configured, you can add LA-210 to the SNMPc Management Console.

Adding LA-210 to the Management Console

Once the system parameters and management access parameters are configured, start using RADview-EMS/NGN LA-210. Before you can start configuring LA-210, you have to first add the LA-210 node to the SNMPc console.

➤ **To include LA-210 as a node into the system:**

1. On the SNMPc Management Console, click **Add Device**.

   The Map Object Properties window appears.

2. Under **Properties>General**, enter the IP address and under **Label**, assign a name to the node.

3. Under **Properties>Access**, verify that the Read and Write Communities settings match the ones set for the LA-210 unit. To verify, log on via terminal or Telnet and navigate to the Host menu (**Configuration>System>Management>Host**).

Note *You may add the node also from the Network Element Browser. The Add Node window is similar to the Map Object Properties window. For additional information, refer to the Systems manual.*

Launching the LA-210 View Window

Once the system parameters and management access parameters are configured, start using RADview-EMS/NGN LA-210 by launching the respective LA-210 View window.

➤ **To add a unit to the SNMPc Console:**

1. Verify that the management parameters are properly configured and that management via SNMP is enabled.

2. Add the LA-210 unit (node) according to the IP address and verify that the read and write communities defined for LA-210 match the Node settings for LA-210, otherwise the unit cannot connect.

   The icon associated with the LA-210 unit (node) appears green once RADview connected to the unit (*Figure 4-9*).

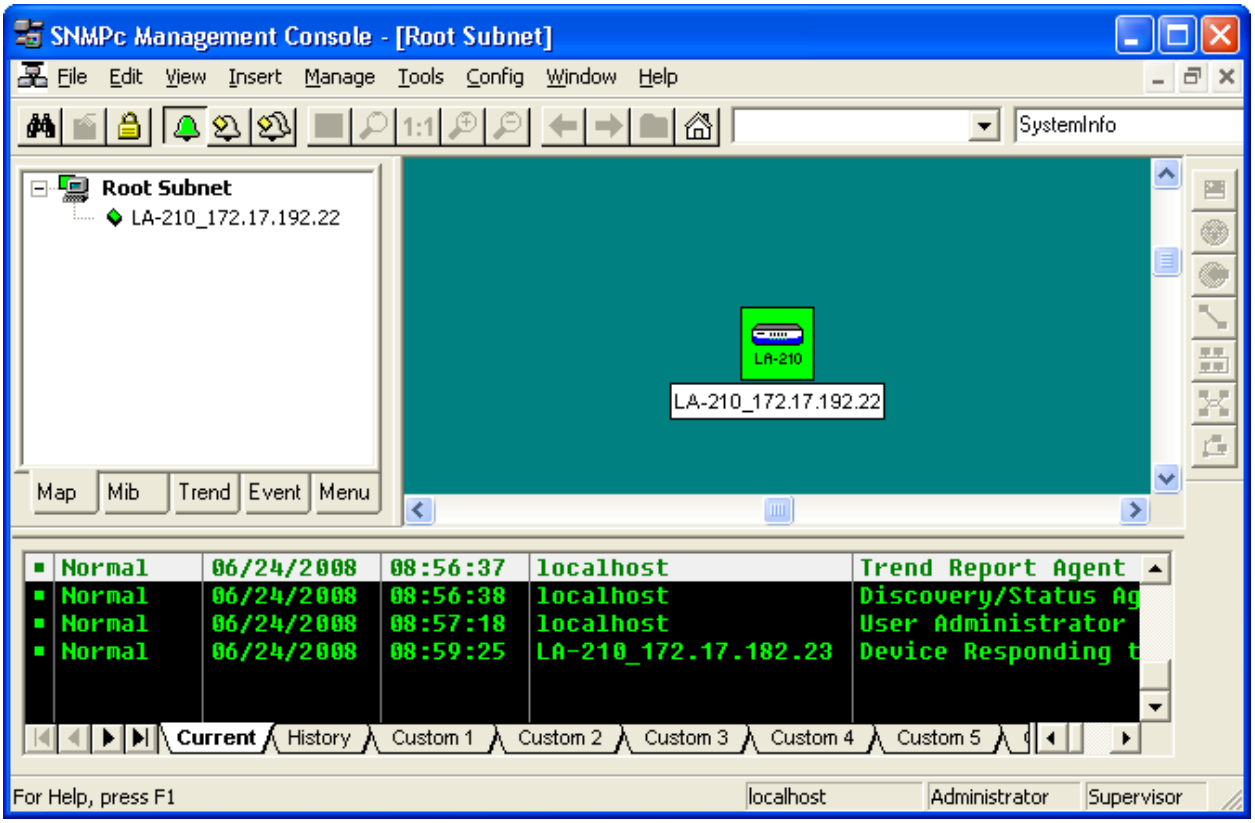

SNMPc Management Console - [Root Subnet]
File Edit View Insert Manage Tools Config Window Help
SystemInfo
Root Subnet
LA-210_172.17.192.22
Map Mib Trend Event Menu
LA-210
LA-210_172.17.192.22
Normal 06/24/2008 08:56:37 localhost Trend Report Agent
Normal 06/24/2008 08:56:38 localhost Discovery/Status Ag
Normal 06/24/2008 08:57:18 localhost User Administrator
Normal 06/24/2008 08:59:25 LA-210_172.17.182.23 Device Responding t
Current History Custom 1 Custom 2 Custom 3 Custom 4 Custom 5
For Help, press F1
localhost
Administrator
Supervisor

Figure 4-9. Management Console – Displaying LA-210

➤ **To launch the LA-210 View window:**

- On the map, select and double-click the LA-210 icon.

  The LA-210 View window appears. You can now remotely perform configuration and monitoring tasks on the LA-210 system.

4.5 Configuring LA-210

Operating LA-210 in flow-based operation mode requires switching LA-210 to the Flow mode, configuring the flow definition and specifying VLANs as members of the desired flow.

➤ **To switch to the Flow mode:**

1. In the LA-210 View window, select the system.
2. On the menu bar, click **Configuration > System Parameters**.

   The Application Mode window appears.

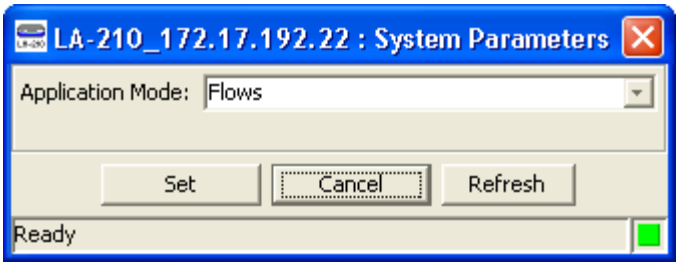


Figure 4-10. System Parameters

3. Under **Application Mode**, select **Flows**.

   LA-210 is set to flow-based operation.

➤ **To add a flow:**

1. In the LA-210 View window, select the system.
2. On the menu bar, click **Configuration > Flows**.

   The Flows window appears.

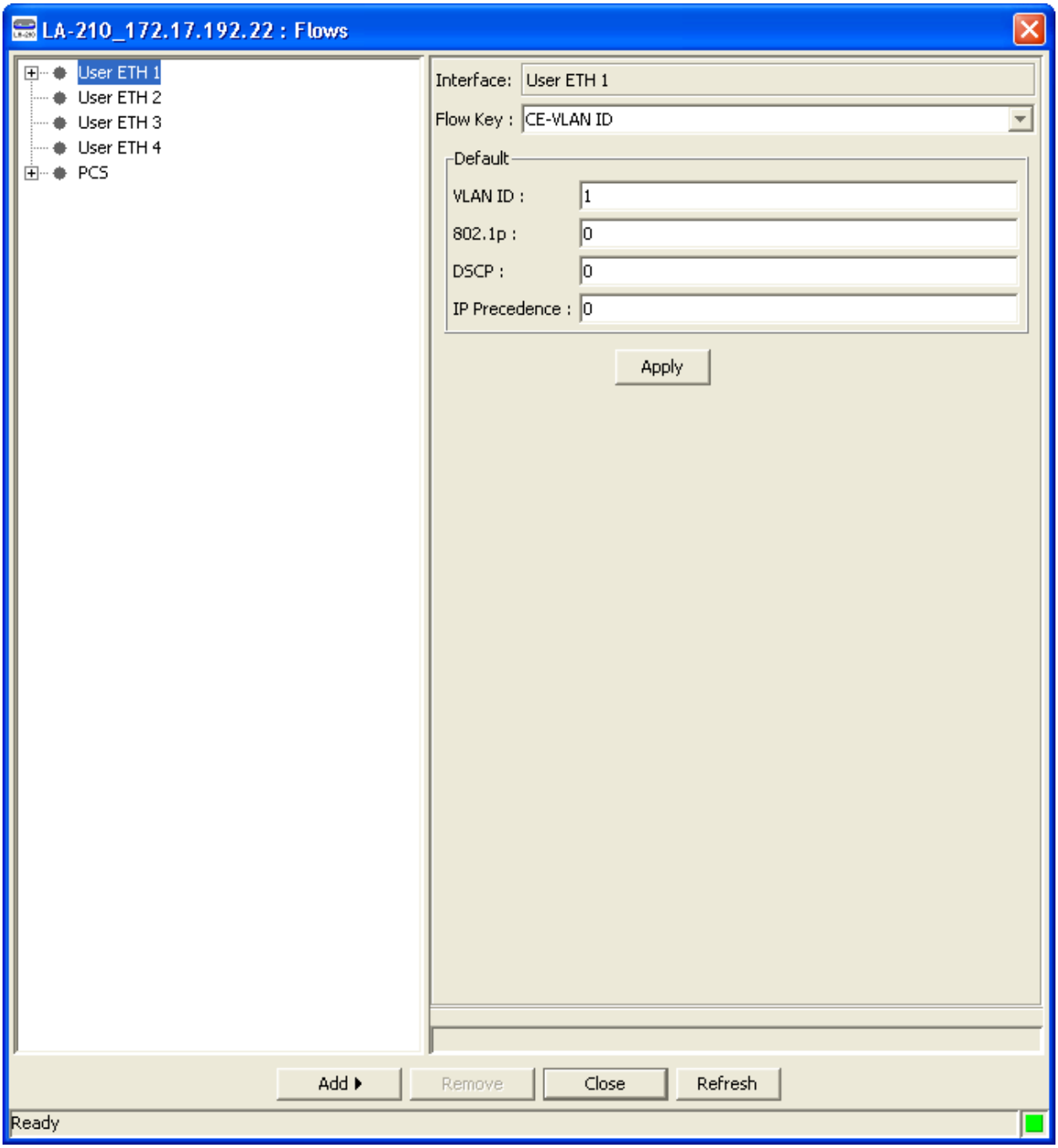


Figure 4-11. Flow Dialog

3. Under **Flow Key**, select **CE-VLAN ID**.

   The flow key for the flows associated with this interface is set.

4. Click ‹**Add**› and then choose **Add Flow**.

   The Add Flow dialog appears (*Figure 4-12*).

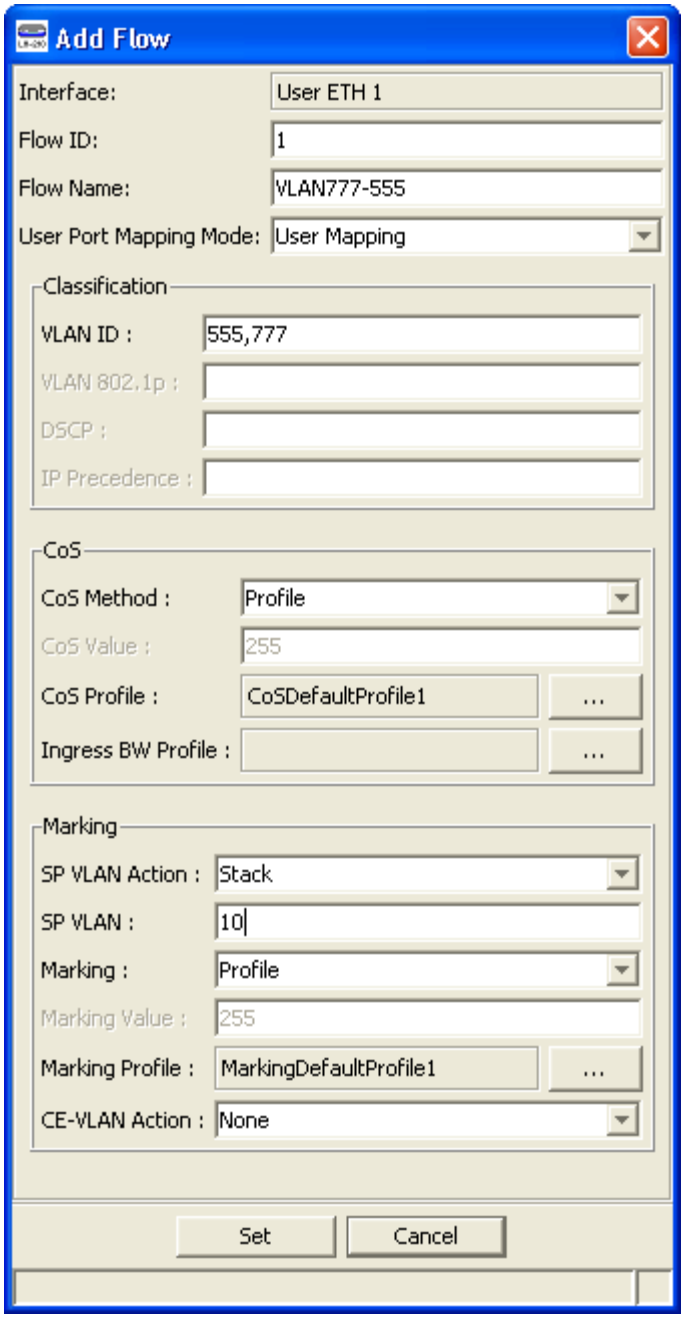


Figure 4-12. Adding a Flow Dialog

5. Under **Flow Name**, enter the name **VLAN777-555**.
6. Under **VLAN ID**, enter **555, 777**.
7. Under **SP VLAN Action**, select **Stack**.
8. Under **SP VLAN**, enter **10**.
9. Click <**Set**>.

   The flow has been added and includes the SP-VLAN 10 on the service provider side.

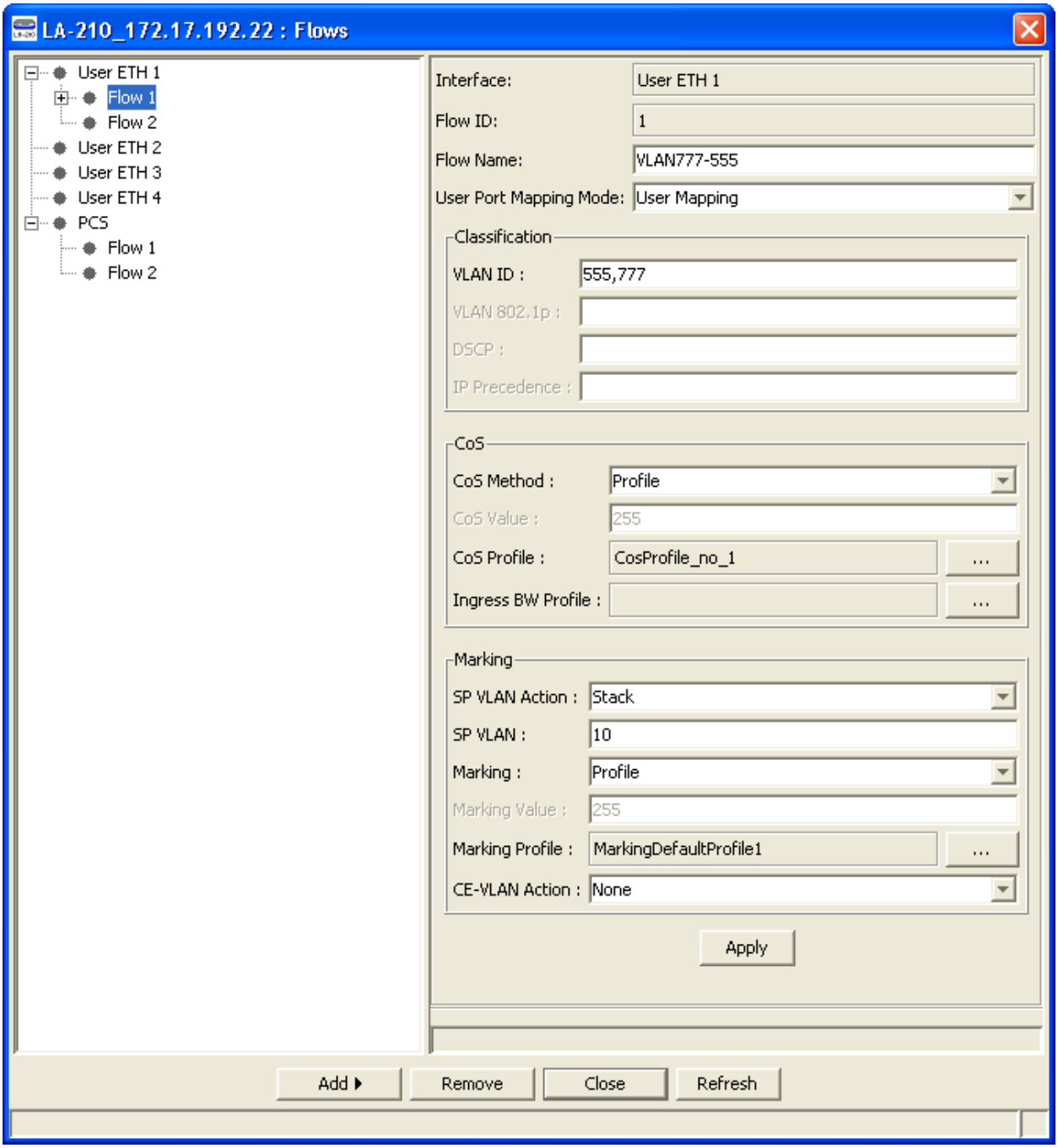


Figure 4-13. Flow Dialog with Flow Parameters

Configuring LA-210 for Advanced Configuration

This chapter explains how to map priority bits to classes of service. You can map each p.bit to any CoS, thus setting different priorities via the CoS profile configuration. You also can set a fixed p.bit per flow.
In the current example you will map p.bits to classes of service (CoS) as follows:

- Map p.bit 7 to CoS 6
- Map p.bit 4 to CoS 3

- Define two services for each CoS, VLAN 777 with CoS 3 (p.bit 4) and VLAN 555 with CoS 6 (p.bit 7).
  In addition you can determine the bandwidth options (policer) for each service.
- Map CoS to **Queue**. This mapping is not configurable, but it is possible to set the queue definition to **Strict** or **WFQ**.

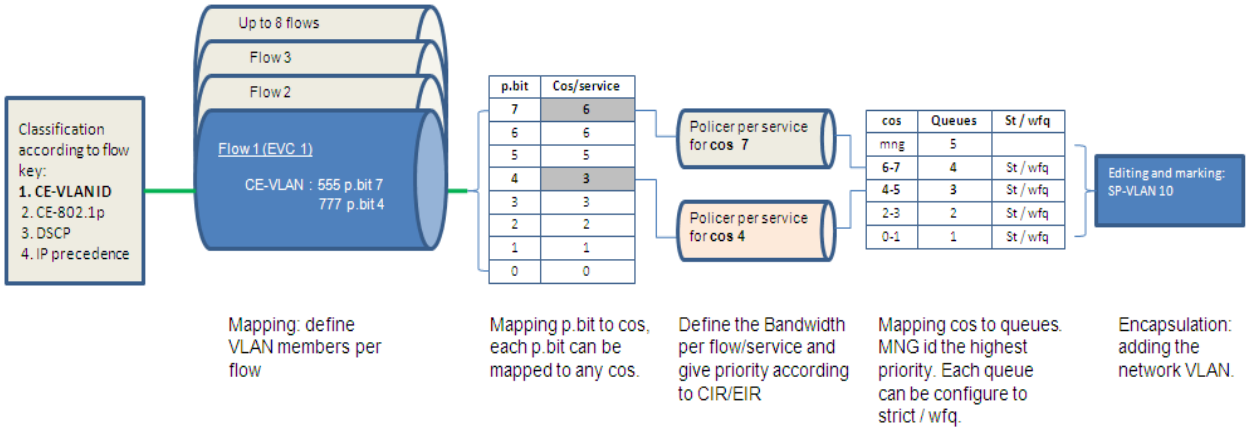

Up to 8 flows
Flow 3
Flow 2
Flow 1 (EVC 1)
CE-VLAN : 555 p.bit 7
777 p.bit 4
Classification according to flow key:
1. CE-VLAN ID
2. CE-802.1p
3. DSCP
4. IP precedence
p.bit
Cos/service
Policer per service for cos 7
Policer per service for cos 4
cos
Queues
St / wfq
mng
6-7
4-5
2-3
0-1
Editing and marking: SP-VLAN 10
Mapping: define VLAN members per flow
Mapping p.bit to cos, each p.bit can be mapped to any cos.
Define the Bandwidth per flow/service and give priority according to CIR/EIR
Mapping cos to queues. MNG id the highest priority. Each queue can be configure to strict / wfq.
Encapsulation: adding the network VLAN.

Figure 4-14. Mapping Priority Bits (p.bits) to Classes of Service (CoS) - Scheme

➤ **To map p.bits to CoS:**

1. In the LA-210 View window, select the System view.
2. On the menu bar, click **Configuration > QoS**.

   The QoS menu appears.
3. Select **CoS Profiles**.

   The CoS Profiles list appears.

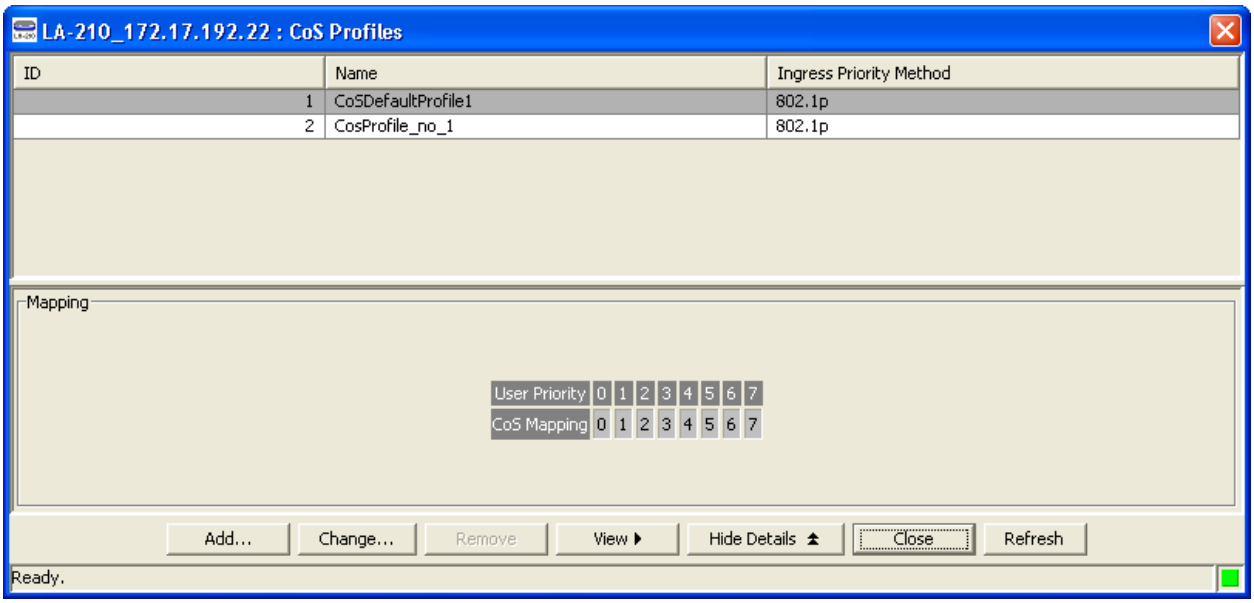


Figure 4-15. CoS Profiles

➤ **To add a CoS profile:**

1. In the CoS Profiles list, click ‹**Add**›.

   The Add CoS Profiles dialog appears with an ID assigned.

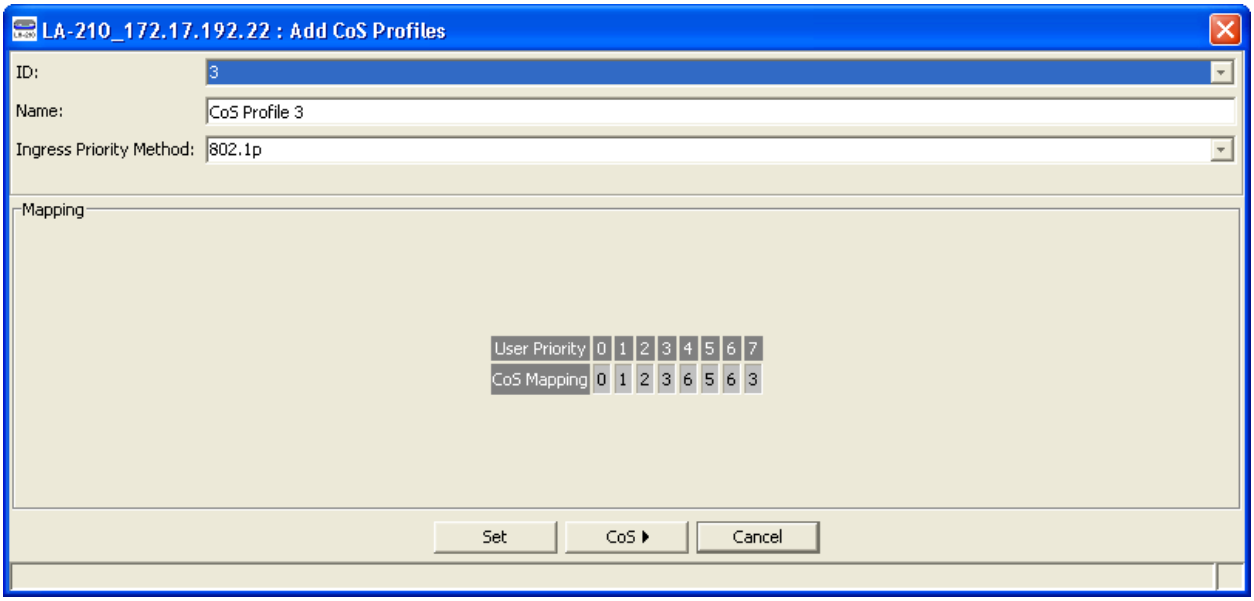


Figure 4-16. Adding CoS Profiles

2. Assign a name to the mapping, for example **CoSProfile_no_1** and leave the ingress priority method set to **802.1p**.
3. Under **Mapping**, set **User Priority 4** to **CoS Mapping 3** and **User Priority 7** to **CoS Mapping 6** respectively.

   To modify the CoS mapping values, select the CoS Map value under **User Priority 4** and then click ‹**CoS**›.

   A list with available CoS values appears.
4. Select **6** from the list.
5. Click ‹**Set**›.

   The new CoS Mapping value is set.
6. Repeat this procedure for the second User Priority value.

➤ **To link flow 1 to the newly created CoS profile:**

1. In the LA-210 View window, select the System view.
2. On the menu bar, click **Configuration › Flows**.

   The Flow dialog appears (*Figure 4-17*).

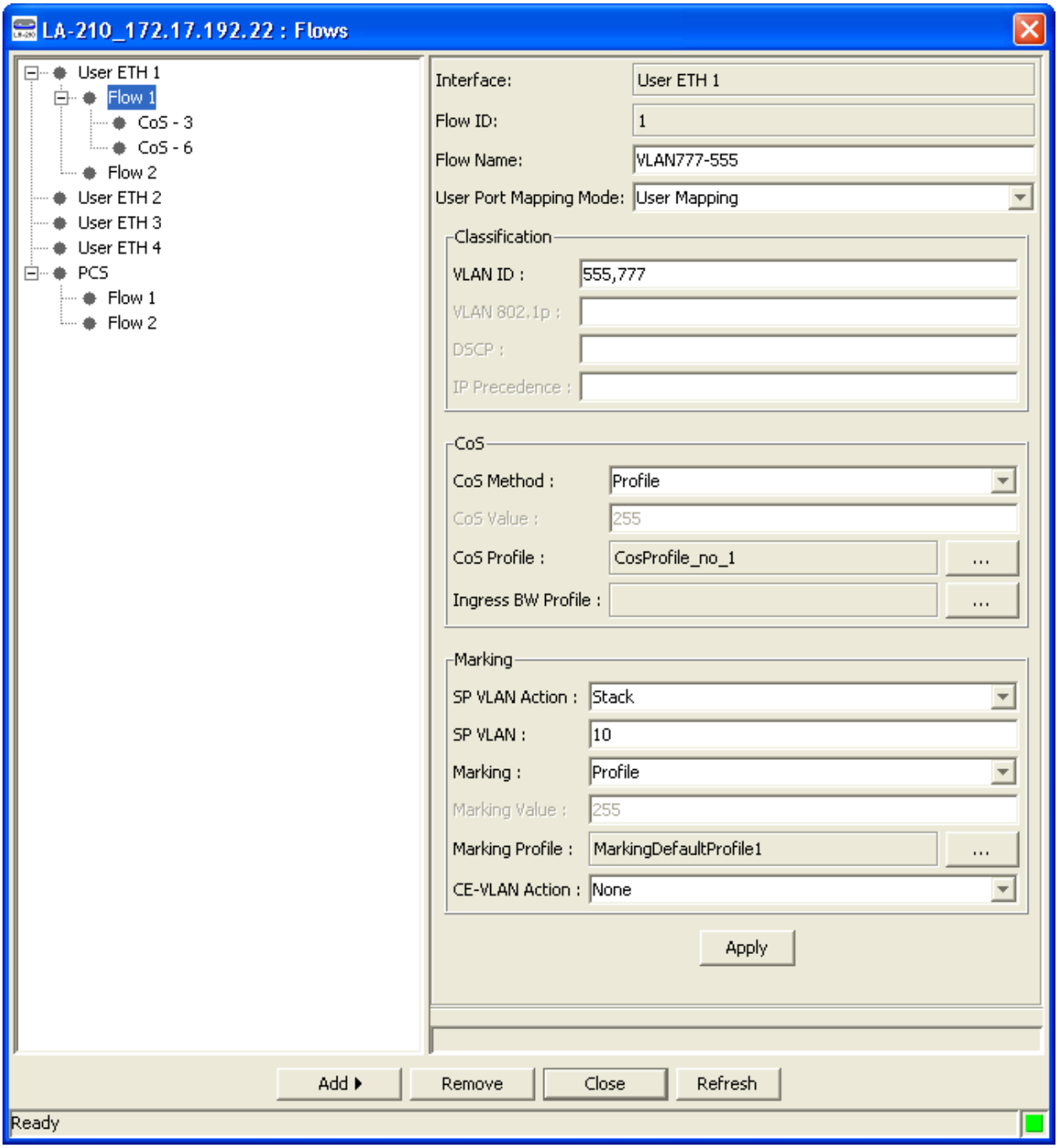


Figure 4-17. Flow Definition

3. Under **CoS Method**, select **Profile**.
4. Under **CoS Profiles**, click **...** .

   The existing CoS profiles appear listed.
5. Select **CosProfile_no_1** from the list and click ‹**Select**›.

   The CoS Profiles list closes and Flow 1 is linked to the newly created CoS profile **CosProfile_no_1** (*Figure 4-17*).

➤ **To define a bandwidth profile for VLAN 777:**

1. On the menu bar, click **Configuration > QoS**.

   The QoS menu appears.

2. Select **Ingress BW Profiles**.

   The Ingress BW Profiles list appears.

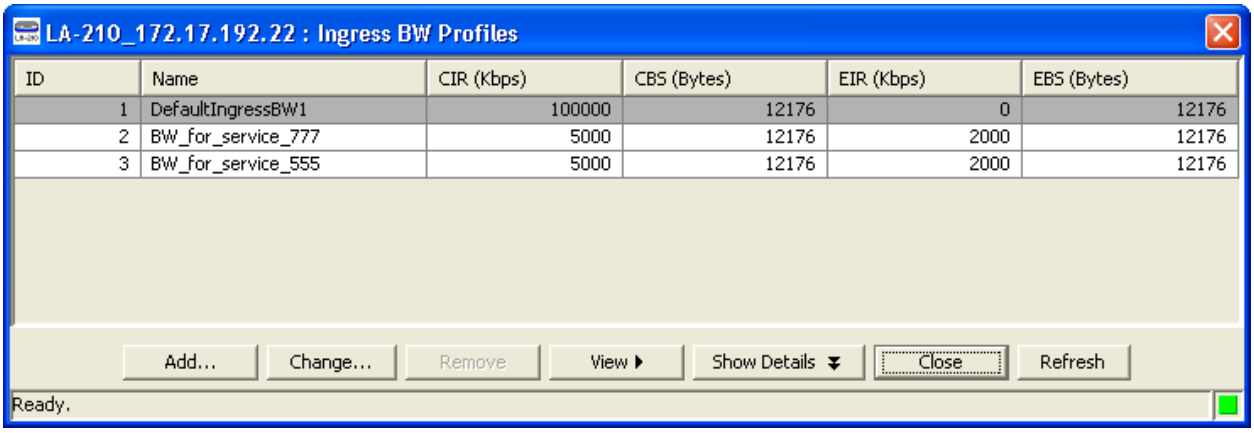


Figure 4-18. Ingress BW Profiles

1. To add a new profile, click <**Add**>.

   The Ingress BW dialog appears.

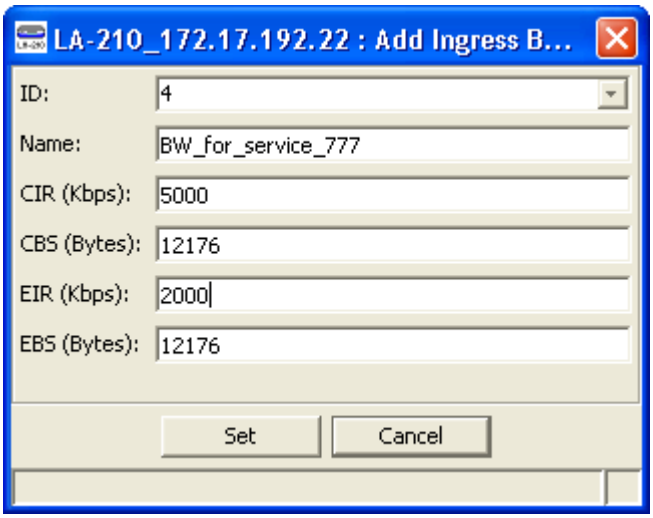


Figure 4-19. Adding Ingress BW Profile 777

2. Under **Name**, enter the desired bandwidth profile name, for example **BW_for_service_777**.
3. Set **CIR** to **5000 Kbps** and **EIR** to **2000 Kbps** .
4. Click <**Set**> to save your settings and then <**Cancel**> to close the Ingress BW dialog.

➤ **To define a bandwidth profile for VLAN 555:**

1. Follow the instructions above.
2. Under **Name**, enter the desired bandwidth profile name, for example **BW_for_service_555**
3. Set **CIR** to **2000 Kbps** and **EBS** to **12176 Bytes** (*Figure 4-20*).

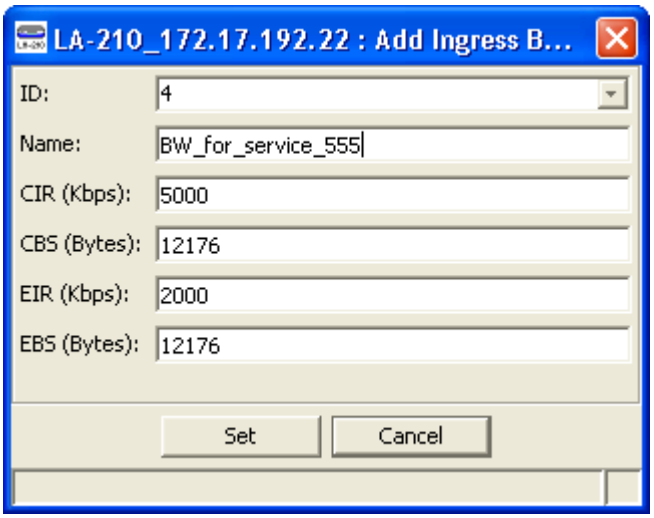


Figure 4-20. Adding Ingress BW Profile 555

4. Click ‹**Set**› to save your settings and then ‹**Cancel**› to close the Ingress BW dialog.

➤ **To define a service for VLAN 777 and CoS 3 (p.bit 4)**

1. In the LA-210 View window, select the System view.
2. On the menu bar, click **Configuration › Flows**.

   The Flow dialog appears (*Figure 4-17*).
3. Under **User ETH1**, select **Flow 1**, and then click ‹**Add**›.
4. Select **Add Service**.

   The Add CoS window appears (*Figure 4-21*).

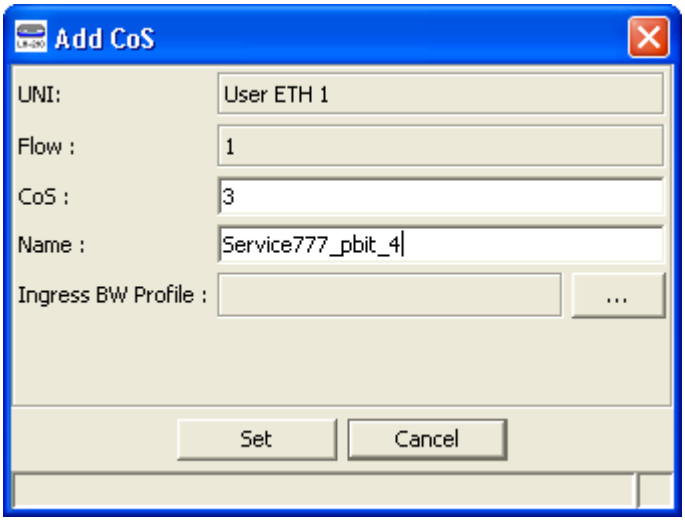


Figure 4-21. Adding Service (CoS)

5. Under **CoS**, enter **3** (cos 3 for p.bit 4).
6. Under **Name**, type a name, for example **Service777_pbit_4**.
7. Link a BW profile to the service. To do so, under **Ingress BW Profile**, click **...** and then select **BW_for_service_777** from the list (*Figure 4-22*).

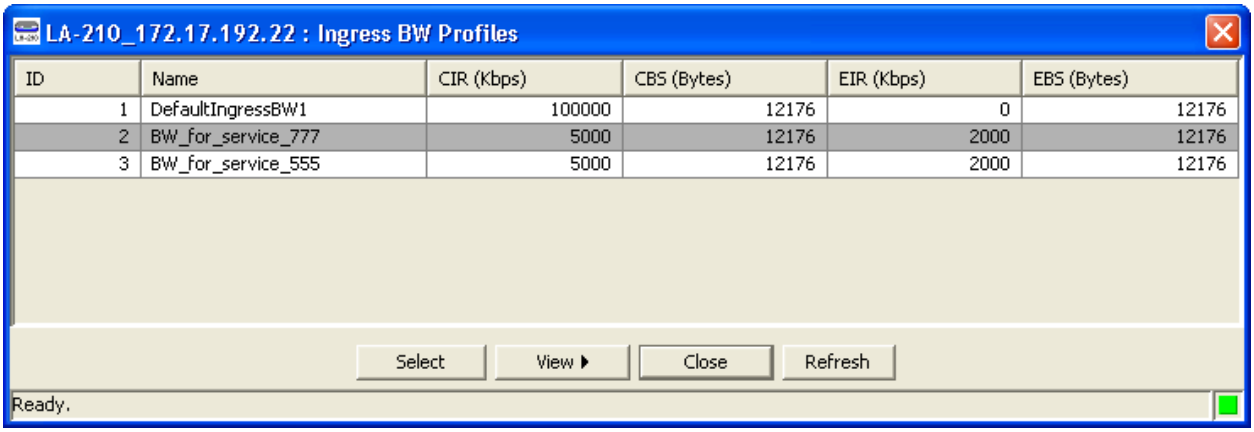


Figure 4-22. Ingress BW Profiles

The service is added (*Figure 4-23*).

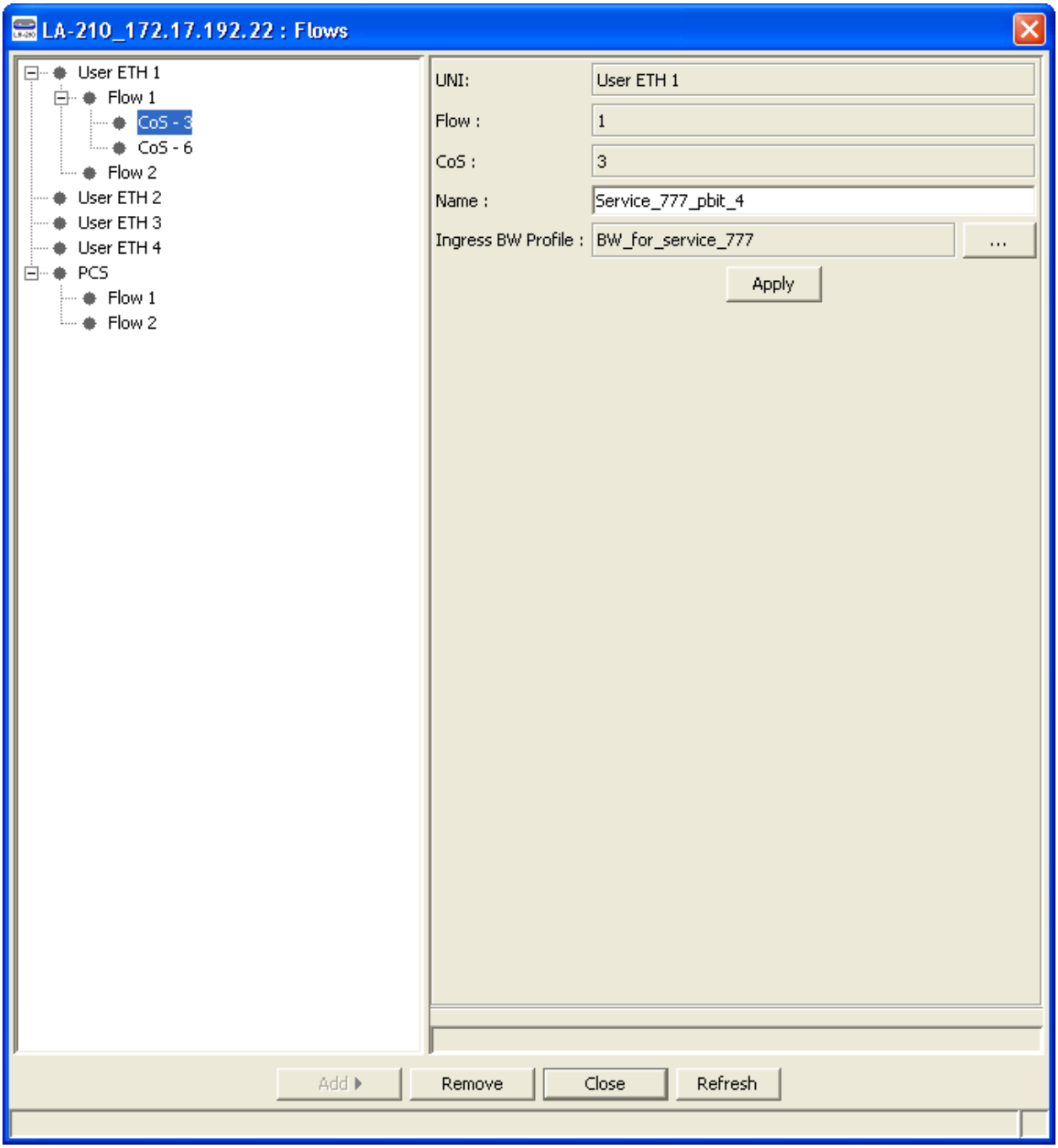


Figure 4-23. Service Service777_pbit_4

➤ **To define a service for VLAN 555 and CoS 6 (p.bit 7)**

1. In the Flow dialog, select **Flow 1** and add an additional service as explained on the previous pages.

   The Add CoS window appears (*Figure 4-21*).

2. Under **CoS**, enter **6 (CoS 6 for p.bit 7)**.
3. Under **Name**, type a name, for example **Service555_pbit_7**.
4. Link the BW profile **BW_for_service_555** to the list as explained above.

   The service is added.

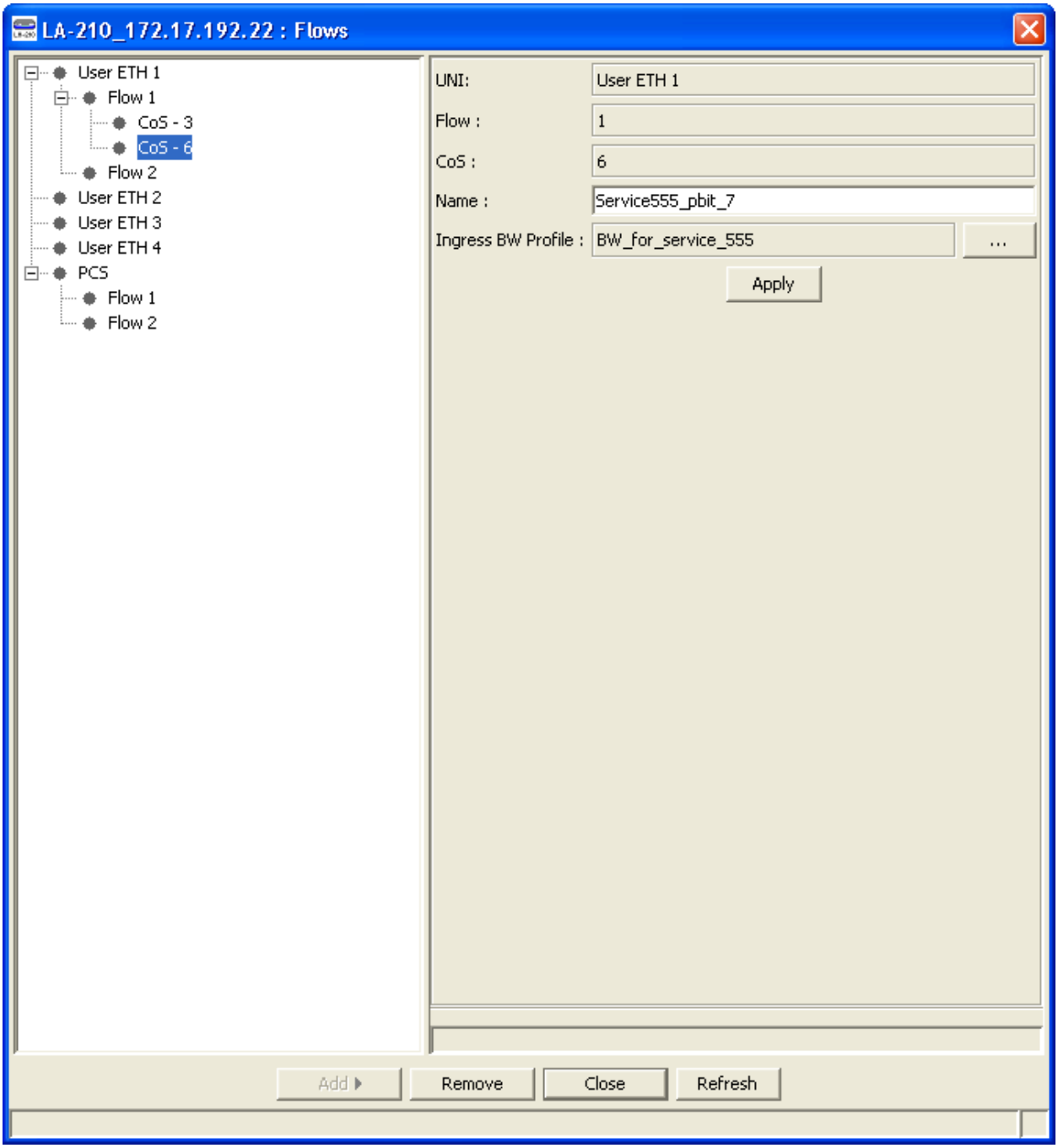


Figure 4-24. Service Service555_pbit_7

Configuring the DSLAM

The DSLAM configuration has to match the configuration of the LA-210 units with the difference that the clock mode must be configured to Central mode.

4.6 Using the Setup to Screen a Movie

You use the two PCs on both sides as server and client. The server (PC1-Server) holds a movie that is going to be viewed from the client side (PC-2 Client). To screen the movie, you use a streaming application, for example the VLC Media Player. For brief instructions on using the VLC Media Player, refer to the section below.

While playing the movie, you may perform various tests outlined in the next chapters.

Using the VLC Media Player

To transmit and play the movie, you may use any streaming application with an associated player on the Client PC, although this application assumes the use of an already installed VLC Media Player on both the Movie PC and the Client PC. A movie that will transmit at around 1.5 Mbps must be available on the Movie PC.

➤ **To start VLC:**

- Double click the VLC.exe short cut

on your desktop.

➤ **To start the movie from PC-2 Movie:**

1. Navigate to **File › Open File...**

   Various tabs with parameters appear.

2. Click the File Tab and, under **Advanced Options**, check **Stream/Save**.

   The Settings button becomes available.

3. Click ‹**Settings**›.

   Stream output options become available.

4. Select **RTP** and, under **Address**, enter the multicast address **224.0.0.0** and then click ‹**OK**›.

5. Start the desired movie.

➤ **To connect from PC-3 Client:**

1. Navigate to **File › Open File...**

   Various tabs with parameters appear.

2. Click the Network Tab.

3. Select **UDP/RTP Multicast** and define the same multicast address as defined on the server, which is **224.0.0.0** in the current example.

4. Click ‹**OK**›.

5. Start playing the movie.

6. Verify that you can see the movie playing on the client side.

4.7 Testing the Flow Based Configuration

This section instructs you on testing the application you configured.

Ping Tests

In order to test whether all components are properly connected and configured, you may ping from various locations as detailed below.

- Ping from PC-2 Movie to PC-3 Client and verify that PC-3 Client replies.
- Ping from PC-3 Client to PC-2 Movie and verify that PC-2 Movie replies.
- Ping from PC-1 Manager to LA-210 and verify that LA-210 replies.
- Ping from ETX-202 Server to ETX-202 Client and verify that ETX-202 Client replies.
- Ping from ETX-202 Client to ETX-202 Server and verify that ETX-202 Server replies.

➤ **To perform a ping test from an ETX-202 unit:**

1. Connect the server PC to the ETX-202 unit that will send the ping via the serial port, start the terminal application and then log on to the ETX-202 unit.

   The Main menu appears.

2. Navigate to the Ping menu (Diagnostics›Ping).

   The Ping menu appears (Figure 4-25).

```
                                ETX-202
Diagnostics>Ping

1. Destination IP Address              ... (172.17.182.24)
2. Number of Frames to Send[0 - 50]    ... (1)
3. Send Ping
4. Stop Ping

>

ESC-prev.menu; !-main menu; &-exit                              1 Mngr/s
```

Figure 4-25. ETX-202 Ping Menu

3. Select **Destination IP Address** and enter the IP address of the ETX-202 unit that you wish to ping.
4. Specify the number of frames (packets) to send.
5. To start pinging the other ETX-202 unit, select **Send Ping**.

   The ping results appear at the bottom of the screen.

Policer Testing

Before performing the policer testing, verify the current Ingress BW settings.

➤ **To view the Ingress BW settings:**

1. Verify that the Bandwidth profile of **CoS 3 (service 777 p.bit 4)** has been previously configured as summarized in the BW Profiles list (*Figure 4-26*).
2. To access the BW Profiles list, in the menu bar, click **Configuration>QoS>Ingress BW Profiles**.

   The Ingress BW Profiles List appears.

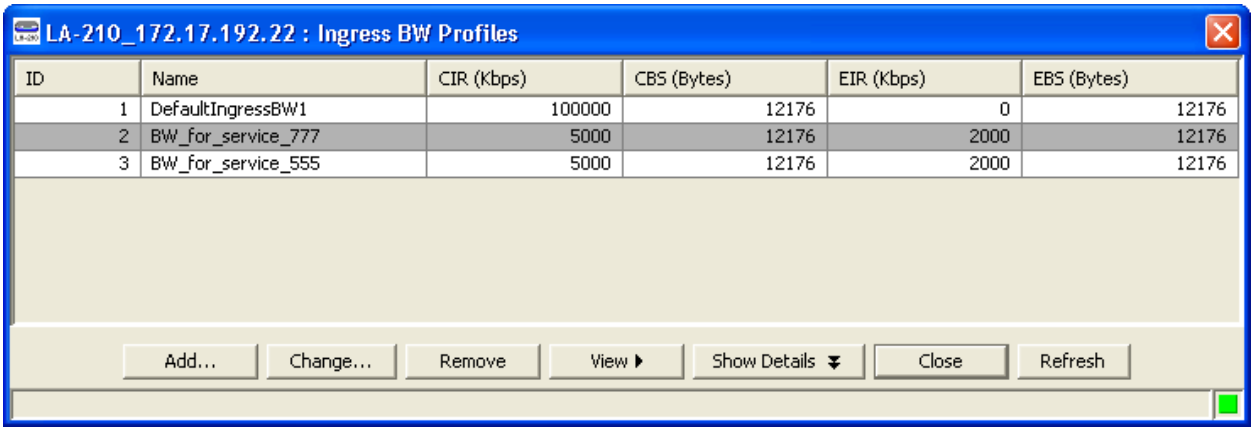


Figure 4-26. Ingress Profiles List

3. Select **BW_for_service_777** and click <**Change**>.

   The Change Ingress BW window appears with the current Ingress BW profile settings.

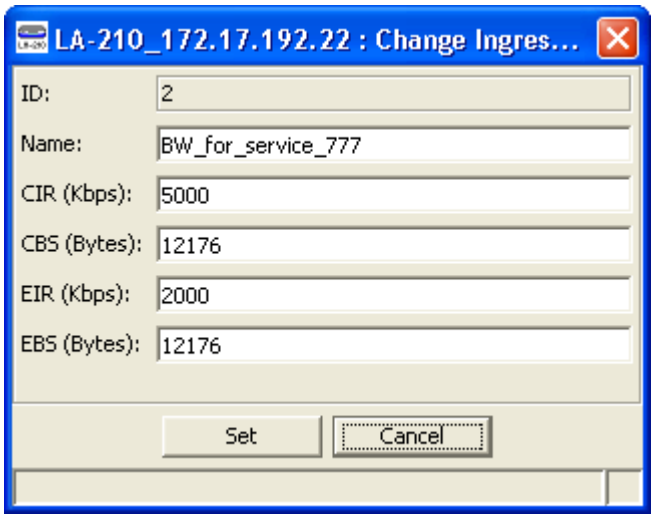


*Figure 4-27. Change window for **BW_for_service_777**, CIR = 5 Mbps, EIR = 2 Mbps*

4. Modify the settings for CIR and and EIR as instructed in the next section and repeat the statistics.

   CIR is the committed bandwidth that the service provider guarantees to the user, therefore they are called green packets.

EIR means that the service for these frames is not guaranteed and depends on available bandwidth. These packets are called yellow packets.
In the current configuration, you will use EIR = 5 Mbps and EIR = 2 Mbps.

➤ **To test the bandwidth profiles:**

1. While viewing the movie from the client PC, in the LA-210 View window, click **Statistics› Flows Statistics**.

   The Flows Statistic dialog appears.

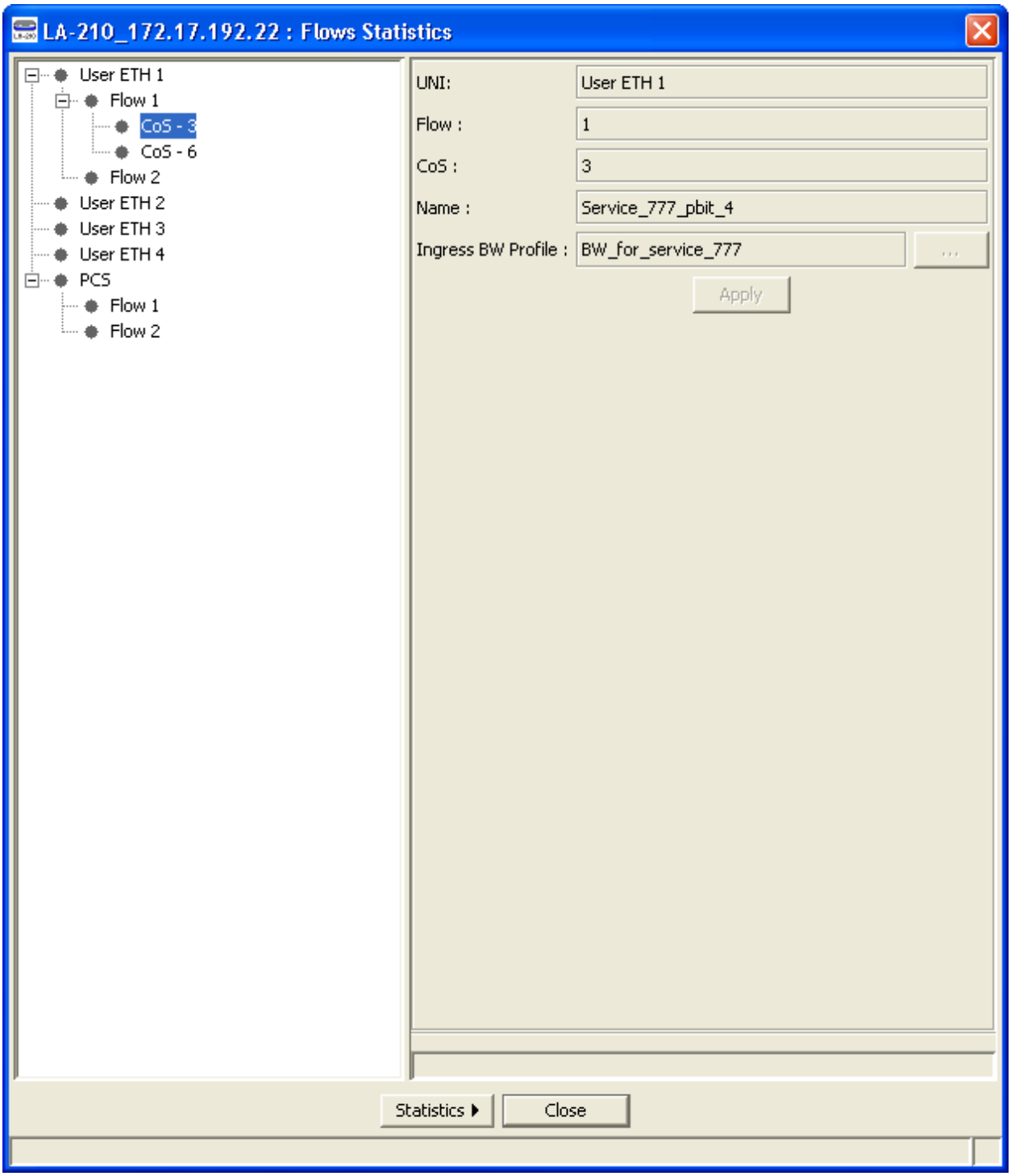


Figure 4-28. Flow Statistics Dialog

2. In the Navigation pane, to the left, select **CoS – 3** and then click ‹**Statistics**›.

   The statistics start running.

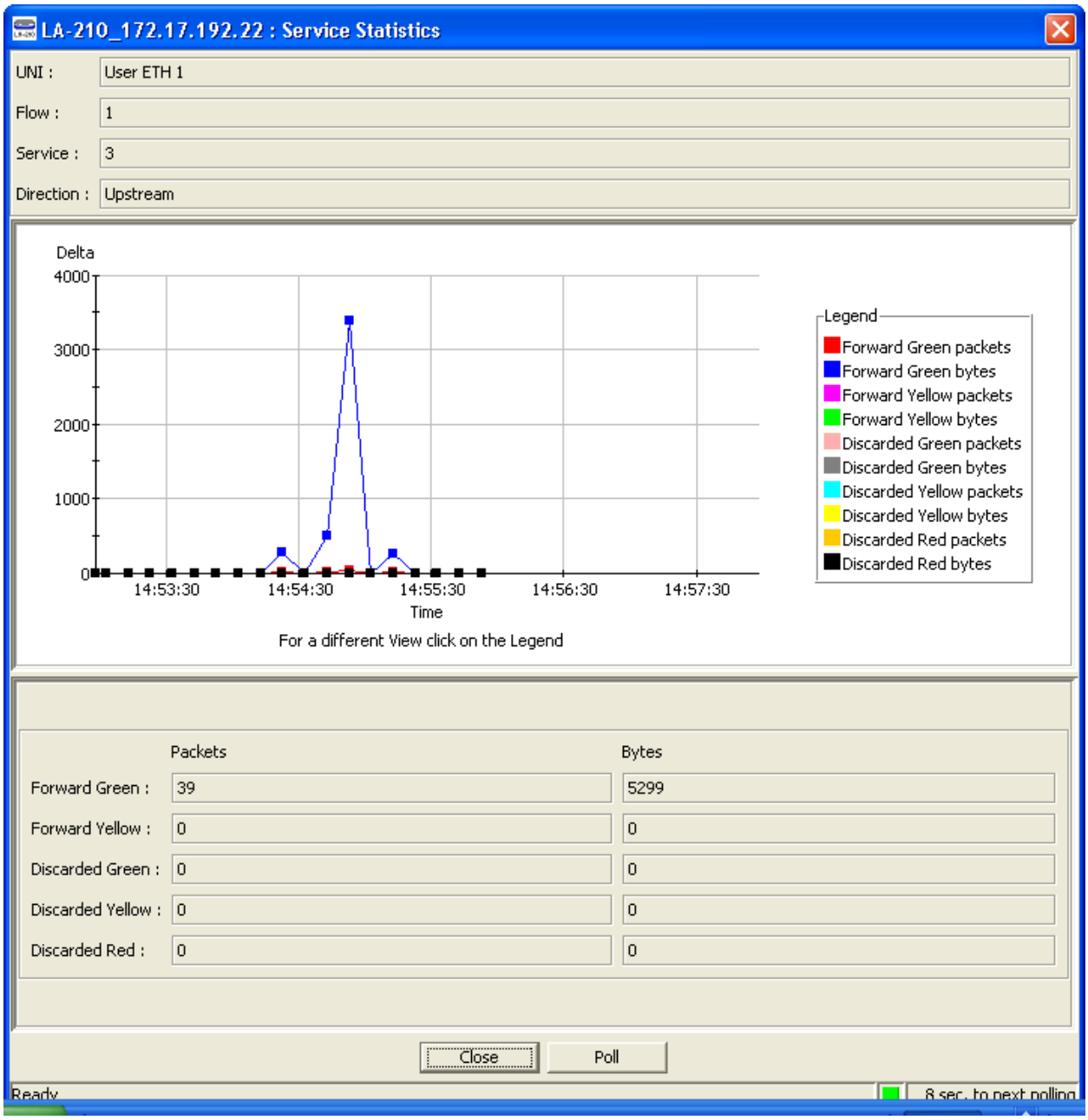


Figure 4-29. Flow Statistics – Example Screen

3. Follow the instructions on the previous pages to modify the values for CIR and EIR.

   The tables below summarize the results obtained while screening a movie transmitting at a bit-rate of about 1.5 Mbps.

Table 4-8. Statistics for Service_777_pbit_4 (CoS 3), Upstream, CIR = 5 Mbps, EIR = 2 Mbps

Fwd Green Packets	1288	**Fwd Green Bytes**	1795534
Fwd YellowPackets	0	**Fwd Yellow Bytes**	0
Dccrd Green Packet	0	**Dscrd Green Bytes**	0
Dscrd Yellow Packets	0	**Dscrd Yellow Bytes**	0
Dscrd Red Packets	0	**Dscrd Red Bytes**	0

The monitoring screen indicates that all packets are green. The movie is transmitting at around 1.5 Mbps and CIR = 5 Mbps so all the packets are green and forwarding.

Table 4-9. Statistics for Service_777_pbit_4 (CoS 3), Upstream, CIR = 1 Mbps, EIR = 2 Mbps

Fwd Green Packets	839	**Fwd Green Bytes**	1180946
Fwd YellowPackets	47	**Fwd Yellow Bytes**	64766
Dccrd Green Packet	0	**Dscrd Green Bytes**	0
Dscrd Yellow Packets	0	**Dscrd Yellow Bytes**	0
Dscrd Red Packets	0	**Dscrd Red Bytes**	0

Since the movie transmits at around 1.5 Mbps and CIR = 1 Mbps and EIR = 2 Mbps using a 22 Mbps uplink, all yellow packets are forwarded as well.

Table 4-10. Statistics for Service_777_pbit_4 (CoS 3), Upstream, CIR = 1 Mbps, EIR = 200 Kbps

Fwd Green Packets	697	**Fwd Green Bytes**	985270
Fwd YellowPackets	118	**Fwd Yellow Bytes**	165360
Dccrd Green Packet	0	**Dscrd Green Bytes**	0
Dscrd Yellow Packets	0	**Dscrd Yellow Bytes**	0
Dscrd Red Packets	247	**Dscrd Red Bytes**	340366

Since the movie transmits at around 1.5 Mbps using CIR=1 Mbps and EIR=200 Kbps, 300 Kbps worth of bandwidth is lacking and therefore the equivalent amount of red packets is dropped.

➤ **To test the bandwidth profiles for the SHDSL interface at various rates:**

1. Navigate to **Configuration>QoS>Ingress BW Profiles** and select **BW_for_Service_777**.
2. Click <**Change**>.

   The **Change Ingress BW Profiles** window appears (*Figure 4-27*).
3. Set the CIR to 5000 Kbps and the EIR to 3000 Kbps.

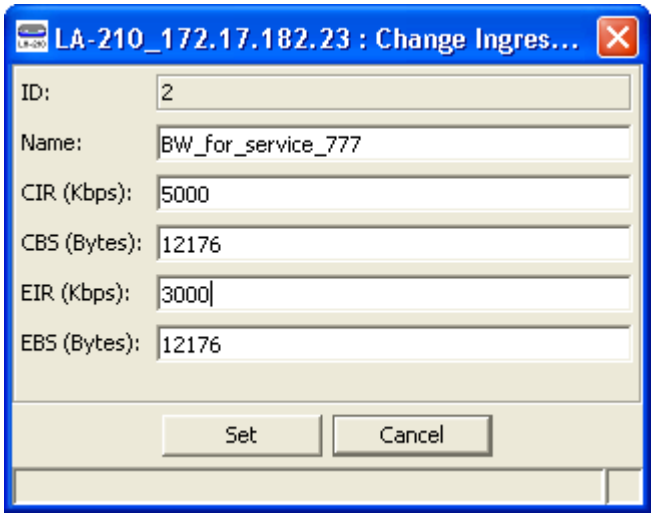


*Figure 4-30. Change window for **BW_for_service_777**, CIR = 5 Mbps, EIR = 3 Mbps*

4. For the SHDSL connection, navigate to the PCS dialog as follows:
   1. From the LA-210 View window, click **Configuration > SHDSL Lines**.

      The SHDSL Layers window appears.

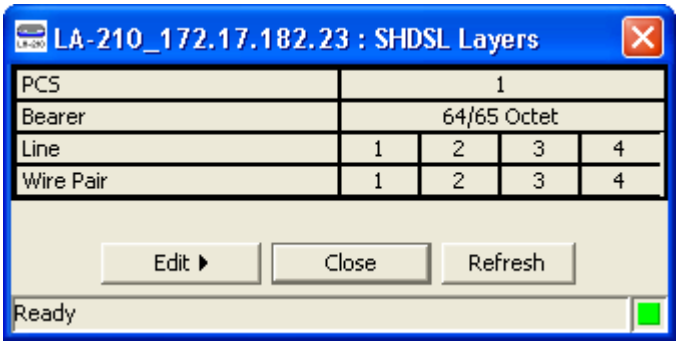


Figure 4-31. SHDSL Layers

   2. Click <**Edit**> and select **PCS** from the list.

      The PCS dialog appears (*Figure 4-32*).

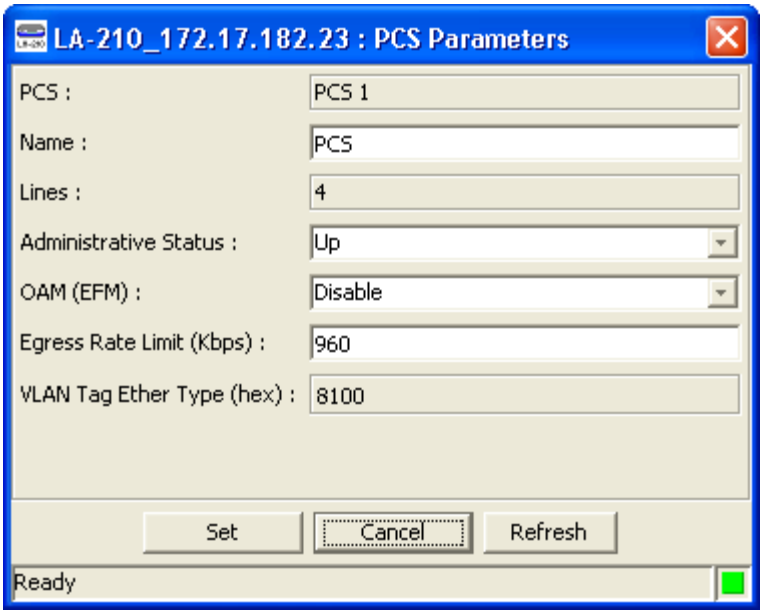


Figure 4-32. PCS Dialog

5. Set the Egress Rate Limit to 960 Kbps and click ‹**Set**›.

   Parts of the green packets are being dropped, since content is being transmitted at around 1.5 Mbps, CIR = 5 Mbps and EIR = 3 Mbps and the SHDSL port has been limited to 1 Mbps.

Table 4-11. Statistics for Service_777_pbit_4 (CoS 3), Upstream, CIR = 5 Mbps, EIR =3 Mbps, SHDSL Egress Rate Limit = 1 Mbps

Fwd Green Packets	2744	**Fwd Green Bytes**	3787644
Fwd YellowPackets	0	**Fwd Yellow Bytes**	0
Dccrd Green Packet	596	**Dscrd Green Bytes**	821288
Dscrd Yellow Packets	0	**Dscrd Yellow Bytes**	0
Dscrd Red Packets	0	**Dscrd Red Bytes**	0

Since the movie transmits at around 1.5 Mbps and CIR = 5 Mbps and EIR = 3 Mbps and reducing the SHDSL Egress Rate Limit to 1 Mbps, some green packets are dropped.

Table 4-12. Statistics for Service_777_pbit_4 (CoS 3), Upstream, CIR = 0.5 Mbps, EIR =3 Mbps, SHDSL Egress Rate Limit = 1 Mbps

Fwd Green Packets	490	**Fwd Green Bytes**	686244
Fwd YellowPackets	448	**Fwd Yellow Bytes**	622856
Dccrd Green Packet	0	**Dscrd Green Bytes**	0
Dscrd Yellow Packets	337	**Dscrd Yellow Bytes**	475410
Dscrd Red Packets	0	**Dscrd Red Bytes**	0

Table 4-13. Statistics for Service_777_pbit_4 (CoS 3), Upstream, CIR = 0.3 Mbps, EIR =0.2 Mbps, SHDSL Egress Rate Limit = 1 Mbps

Fwd Green Packets	664	**Fwd Green Bytes**	926016
Fwd YellowPackets	170	**Fwd Yellow Bytes**	234260
Dccrd Green Packet	0	**Dscrd Green Bytes**	0
Dscrd Yellow Packets	0	**Dscrd Yellow Bytes**	0
Dscrd Red Packets	116	**Dscrd Red Bytes**	159848

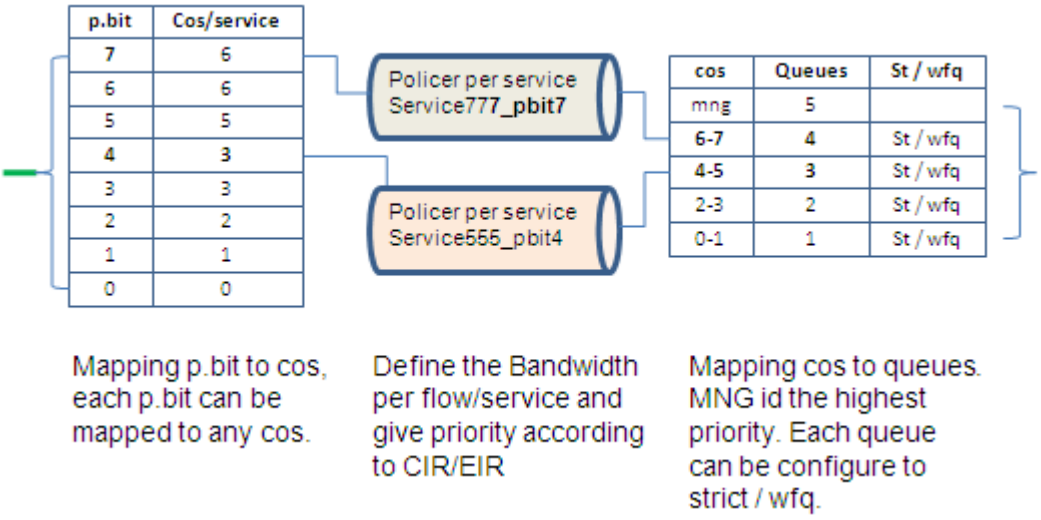
Since the movie transmits at around 1.5 Mbps and CIR = 0.3 Mbps and EIR = 0.2 Mbps and the SHDSL Egress Rate Limit is 1 Mbps, all green and all yellow packets are transferred. Some red packets are dropped.

Priority Testing

This section explains how to test priority settings for two services with two different priority bits that you configured previously, with modified priority and with all frames transmitted at the same priority.

Using the Previously Configured Priority

This section explains how to test the priority that has been defined earlier for Service777 and Service555.


p.bit
Cos/service
7 6
6 6
5 5
4 3
3 3
2 2
1 1
0 0
Policer per service Service777_pbit7
Policer per service Service555_pbit4
cos
Queues
St / wfq
mng 5
6-7 4 St / wfq
4-5 3 St / wfq
2-3 2 St / wfq
0-1 1 St / wfq
Mapping p.bit to cos, each p.bit can be mapped to any cos.
Define the Bandwidth per flow/service and give priority according to CIR/EIR
Mapping cos to queues. MNG id the highest priority. Each queue can be configure to strict / wfq.

p.bit 7 is mapped to CoS 6 and p.bit 4 is mapped to CoS 3. CoS 3 is mapped to queue 2 and CoS 6 is mapped to queue 4. This means that frames arriving to queue 4 get higher priority than the frames arriving to queue 2.

➤ **To perform bandwidth tests on services mapped to priority bits:**

1. Configure **Service777_pbit_4** to CIR = 5000 Kbps and EIR = 2000 Kbps.

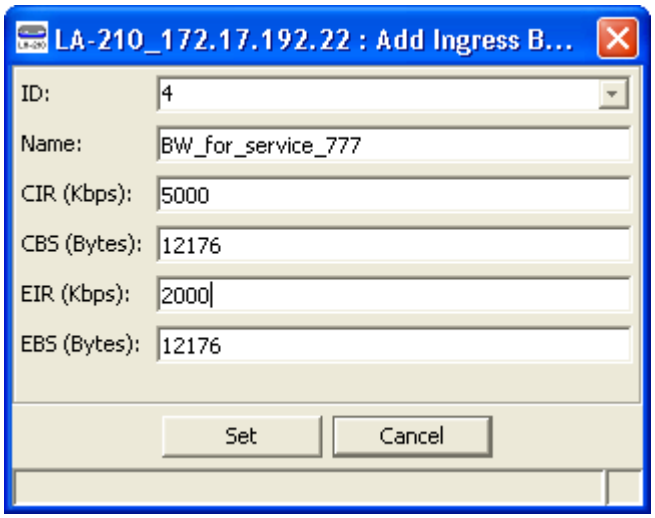


Figure 4-33. Bandwidth Profile for Service777 - CIR = 5 Mbps, EIR = 2 Mbps

2. Configure **Service555_pbit_7** to CIR = 1000 Kbps and EIR = 2000 Kbps.

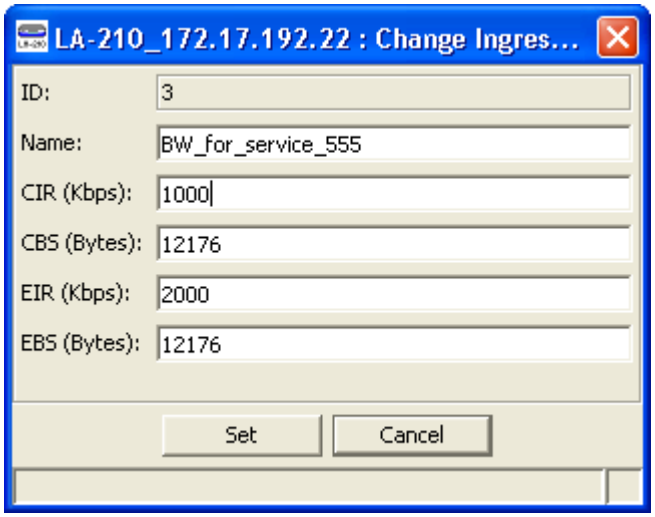


Figure 4-34. Bandwidth Profile for Service555 - CIR = 1 Mbps, EIR = 2 Mbps

3. For the SHDSL connection, navigate to the PCS dialog (**Configuration > SHDSL Lines > PCS**) and set the Egress Rate Limit to 1000 Kbps (*Figure 4-32*).
4. To view the CoS statistics, navigate to **Statistics > Flows Statistics > CoS – 6** and click <**Statistics**>.

Table 4-14. Statistics for Flow 1_(VLAN777-555) - Service 555_pbit_7 (CoS 6), Upstream, CIR = 1 Mbps, EIR =2 Mbps,

Fwd Green Packets	87	**Fwd Green Bytes**	5916
Fwd YellowPackets	0	**Fwd Yellow Bytes**	0
Dccrd Green Packet	0	**Dscrd Green Bytes**	0
Dscrd Yellow Packets	0	**Dscrd Yellow Bytes**	0
Dscrd Red Packets	0	**Dscrd Red Bytes**	0

Table 4-15. Statistics for Flow 1_(VLAN777-555) - Service 777_pbit_4 (CoS 3), Upstream, CIR = 5 Mbps, EIR =2 Mbps,

Fwd Green Packets	4729	**Fwd Green Bytes**	6530429
Fwd YellowPackets	0	**Fwd Yellow Bytes**	0
Dccrd Green Packet	238	**Dscrd Green Bytes**	327964
Dscrd Yellow Packets	0	**Dscrd Yellow Bytes**	0
Dscrd Red Packets	0	**Dscrd Red Bytes**	0

- **Service555_pbit_7 (CoS 6):**
  All green packets are transferred since they are associated with CoS 6, which are transmitted at a higher priority than the ones associated with CoS 3.
- **Service777_pbit_4 (CoS 3):**
  Some green packets are transferred and others are dropped since the Egress rate limit (SHDSL) is set to 1 Mbps and **Service555** has a higher priority, causing its packets to be transferred first.

➤ **To modify the CIR and EIR:**

1. Configure **Service777_pbit_4** to CIR = 5000 Kbps EIR = 2000 Kbps.
2. Configure **Service555_pbit_7** to CIR = 0 Kbps and EIR = 2000 Kbps.
3. For the SHDSL connection, navigate to the PCS dialog (**Configuration > SHDSL Lines > PCS**) and set the Egress Rate Limit to 1000 Kbps (*Figure 4-32*).
4. To view the CoS statistics, navigate to **Statistics > Flows Statistics > CoS – 6** and click <**Statistics**>.

Table 4-16. Statistics for Flow 1_(VLAN777-555) - Service 555_pbit_7 (CoS 6), Upstream, CIR = 32 Kbps, EIR =2 Mbps,

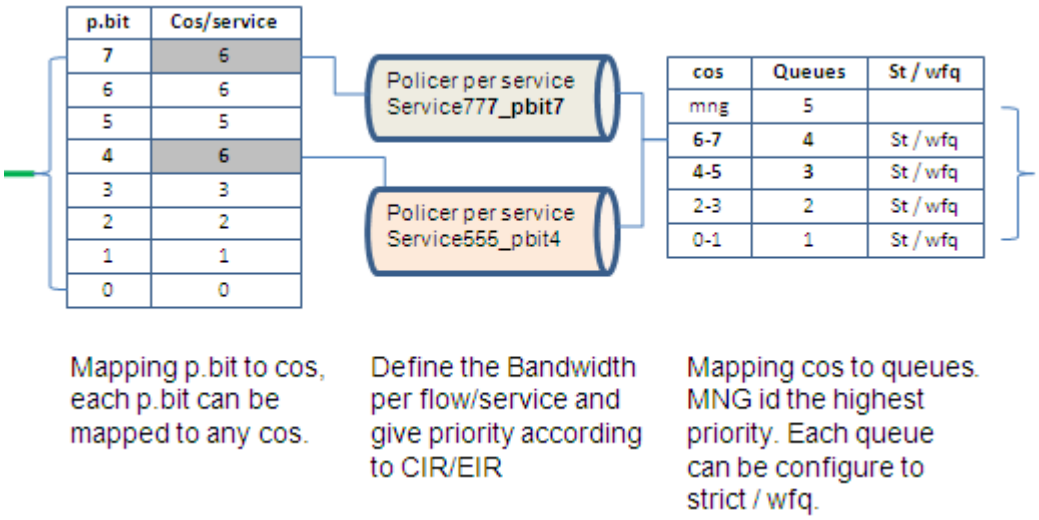
Fwd Green Packets	0	**Fwd Green Bytes**	0
Fwd YellowPackets	258	**Fwd Yellow Bytes**	17544
Dccrd Green Packet	0	**Dscrd Green Bytes**	0
Dscrd Yellow Packets	0	**Dscrd Yellow Bytes**	0
Dscrd Red Packets	0	**Dscrd Red Bytes**	0

Table 4-17. Statistics for Flow 1_(VLAN777-555) - Service 777_pbit_4 (CoS 3), Upstream, CIR = 5 Mbps, EIR =2 Mbps,

Fwd Green Packets	44158	**Fwd Green Bytes**	60852602
Fwd YellowPackets	0	**Fwd Yellow Bytes**	0
Dccrd Green Packet	16430	**Dscrd Green Bytes**	22635579
Dscrd Yellow Packets	0	**Dscrd Yellow Bytes**	31694
Dscrd Red Packets	0	**Dscrd Red Bytes**	0

- **Service555_pbit_7 (CoS 6):**
  All yellow packets are transferred since they are associated with CoS 6, which are transmitted at a higher priority than the ones associated with CoS 3.
- **Service777_pbit_4 (CoS 3):**
  Some green packets are transferred and others are dropped since the Egress rate limit (SHDSL) is set to 1 Mbps and **Service555** has a higher priority, causing its packets to be transferred first.

Defining the Same Priority to All Frames



Follow the instructions under *Configuring LA-210 for Advanced Configuration* to map both p.bit 7 and p.bit 4 to CoS 6.

This means that frames with p.bit 4 and 7 are mapped to CoS 6 and therefore to the same queue.

➤ **To define CIR and EIR settings:**

1. Configure **Service777_pbit_4** to CIR = 10000 Kbps and EIR = 2000 Kbps.
2. Configure **Service555_pbit_7** to CIR = 1000 Kbps and EIR = 2000 Kbps.

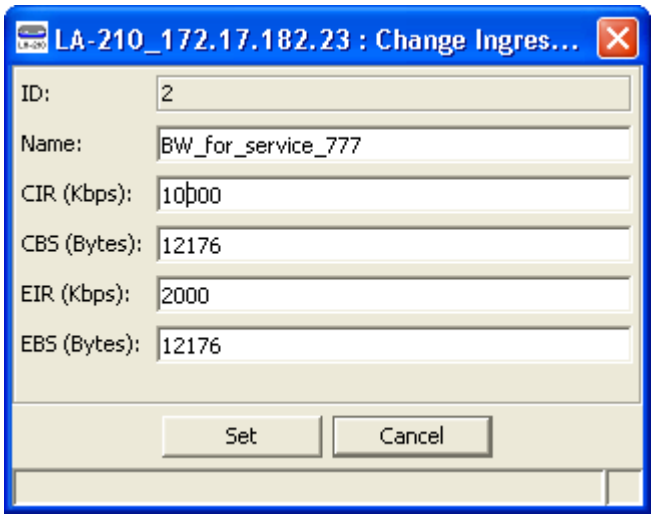


Figure 4-35. Bandwidth Profile for Service777 - CIR = 10 Mbps, EIR = 2 Mbps

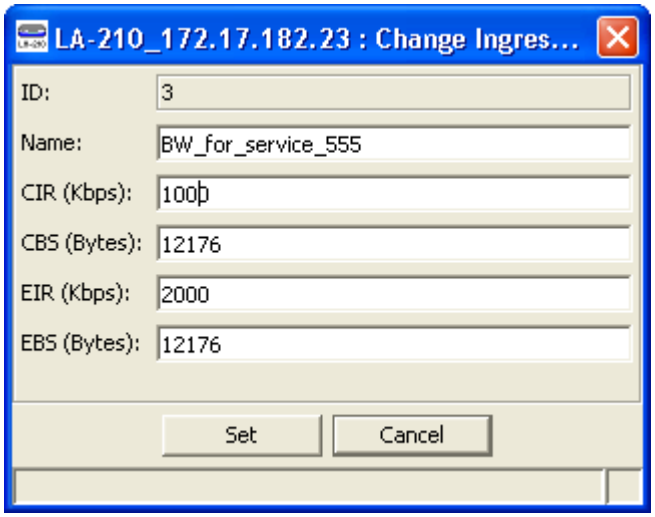


Figure 4-36. Bandwidth Profile for Service555 - CIR = 1 Mbps, EIR = 2 Mbps

3. For the SHDSL connection, navigate to the PCS menu (Configuration›Physical Layer›SHDSL›PCS) and set the Egress Rate Limit to 1000 Kbps (*Figure 4-32*).

   LA-210 forwards some green packets of both **Service555_pbit_7** and **Service777_pbit_4** and drops the remainder.

➤ **To test the new mappings:**

1. Start the VLC server to transmit the movie and the client to view the result.
2. Using a serial connection, connect the server PC to ETX-202 Server and log on to it.
3. Verify that there will be no response to pinging an ETX unit from the second one. To do so, log on to one of the ETX-202 units, navigate to the Ping menu (Diagnostics›Ping) and start pinging the second ETX-202 unit.
4. Following the instructions above, ping ETX-202 Server from ETX-202 Client.
5. To view the CoS statistics, navigate to **Statistics › Flows Statistics › CoS – 6** and click ‹**Statistics**›.
6. View the CoS statistics for CoS3 (**Statistics › Flows Statistics › CoS – 3**).

Table 4-18. Statistics for Flow 1_(VLAN777-555) - Service 777_pbit_4 and 7 (CoS 6 and CoS 3), Upstream, CIR = 10 Mbps, EIR =2 Mbps

Fwd Green Packets	8285	**Fwd Green Bytes**	1114948
Fwd YellowPackets	0	**Fwd Yellow Bytes**	0
Dccrd Green Packet	681	**Dscrd Green Bytes**	92140
Dscrd Yellow Packets	0	**Dscrd Yellow Bytes**	0
Dscrd Red Packets	0	**Dscrd Red Bytes**	0

Both services, **Service555_pbit_7** and **Service777_pbit_4** are associated with the same CoS, therefore the results are identical.

```
                              RV-EMS/NGN LA-210
Diagnostics>Ping

1. Destination IP Address              ... (0.0.0.0)
2. Number of Frames to Send[0 - 50]    ... (1)
3. Send Ping
4. Stop Ping

>
Please select item <1 to 4>

ESC-prev.menu; !-main menu; &-exit                                    1 Mngr/s
------------------------------------------------------------------------------
Reply  from  host  172.17.182.24  time = 310m
Reply  from  host  172.17.182.24  time = 320m
Reply  from  host  172.17.182.24  time = 320m
Reply  from  host  172.17.182.24  time = 320m
Reply  from  host  172.17.182.24  time = 320m
Host 172.17.182.24 request timed out.
Reply  from  host  172.17.182.24  time = 320m
```

Figure 4-37. Ping Results - ETX-202 Server to ETX-202 Client

The ping test shows that not all the pings are replied to and the ones that are replied to are replied to with a delay of about 300 msec. The reason is that all frames are mapped to the same queue and the SHDSL port is limited to 1 Mbps and the green packets are greater larger than 1 Mbps.

Chapter 5

Performance Management

This chapter discusses how to monitor the performance of the LA-210 system using RADview-EMS/NGN.

This chapter explains how to perform the following tasks:

- *Viewing System Statistics*
  - *Polling the Agent*
    - *Setting the Polling Interval*
  - *Viewing Flow Statistics*
    - *Viewing Service Statistics*
  - *Clearing All Statistics*
- *Viewing SHDSL Port Statistics*
  - *Viewing Line Statistics*
  - *Viewing PCS Statistics*
  - *Viewing ATM Statistics*s
  - *Viewing VCC Statistics*
- *Viewing Ethernet Port Statistics*
  - *Viewing Rx Frame Types*
  - *Viewing Tx Frame Types*
  - *Viewing Errors*
  - *Clearing All Statistics*
- *Viewing OAM (CFM) Statistics*
  - *Accessing the OAM (CFM) Statistics Dialog*
  - *Viewing Running Counters*
  - *Viewing Current Frames*
  - *Viewing Current Delays*
  - *Viewing Interval Frames*
  - *Viewing Interval Delays*

5.1 Viewing System Statistics

RADview allows you to set the polling interval and view OAM (CFM) statistics for the LA-210 system.

Polling the Agent

Polling the agent updates the LA-210 device status. You can execute either manual or automatic polling of the LA-210 system. Device components are automatically polled once every minute. However, you can also manually poll and update the status of the components.

➤ **To manually poll the agent components:**

1. In the LA-210 View window, select the system.
2. On the menu bar, click **Configuration** > **Poll Agent**.

   The components are polled and their status is updated immediately.

Setting the Polling Interval

You can set the polling interval by selecting the time (in seconds) that will pass between two successive statistics polls of LA-210 ports.

➤ **To set the polling interval:**

1. In the View window, select the system.
2. On the menu bar, click **Statistics** > **Polling Interval**.

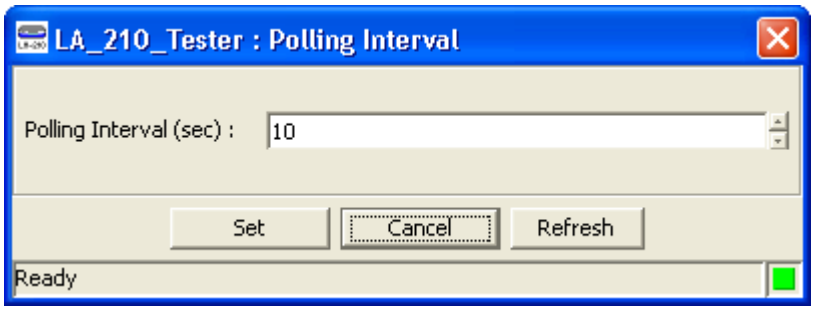


Figure 5-1. Polling Interval Dialog Box

3. Fill in the field, as described in *Table 5-1*.
4. Click ‹**Set**› to implement the changes.

   The new polling interval is set after the dialog box is refreshed, and affects all Statistics dialog boxes of all ports. When updating the polling interval while other dialog boxes are open, the new polling range is updated only after an automatic polling occurs or upon clicking **Poll**.

Table 5-1. Polling Interval Dialog Box Parameters

Parameter	Possible Values / Remarks
Polling Interval (sec)	Polling interval in seconds. **5, 10** (default)**, 15...60**

Viewing Flow Statistics

You can view flow statistics per selected port.

➤ **To view flow statistics:**

1. In the View window, select the system.
2. On the menu bar, click **Statistics > Flows Statistics**.

   The Flows Statistics Main screen is displayed, displaying the configured flows below the associated ports.
3. Select the desired flow.

   The associated flow parameters appear.

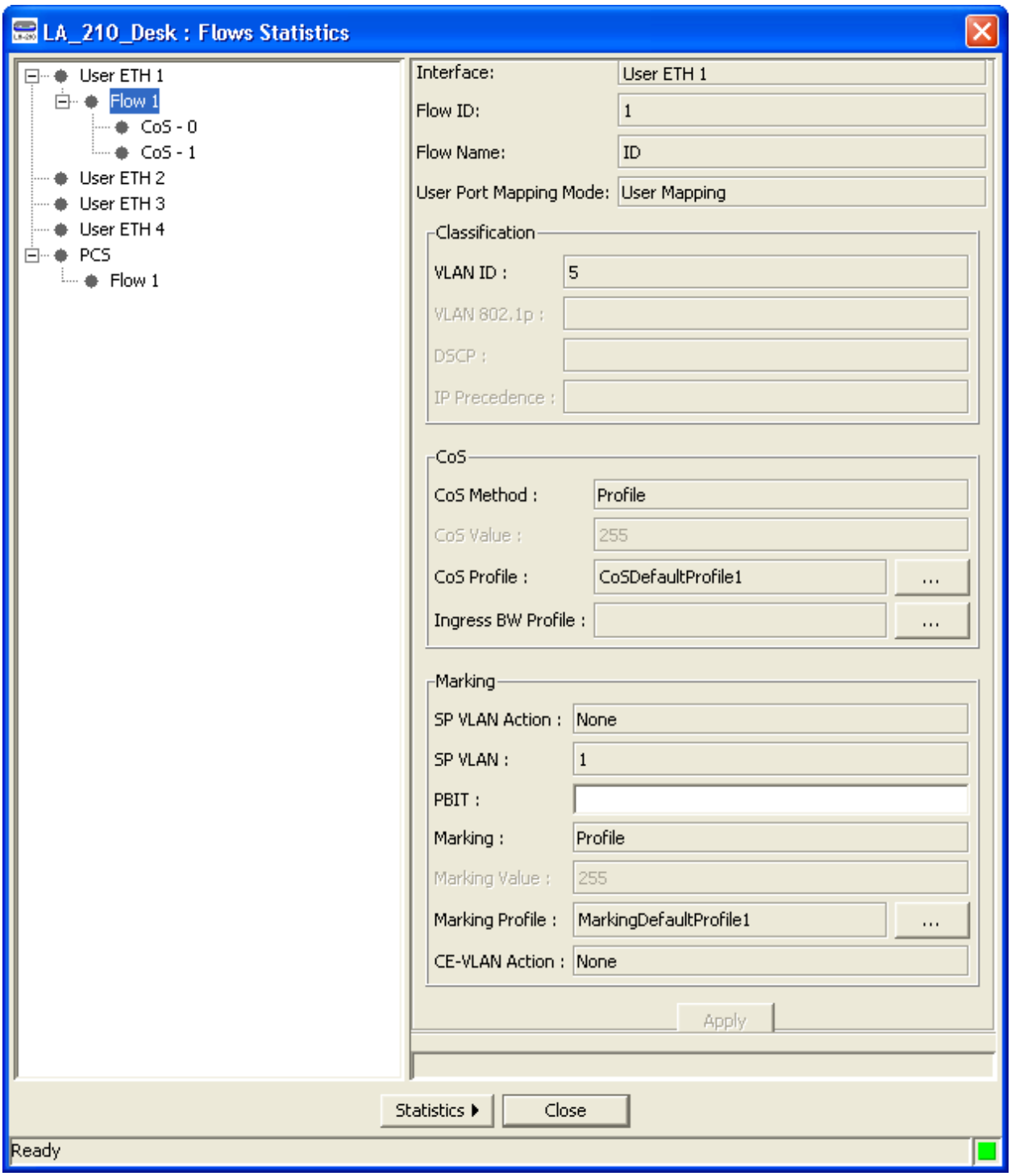


Figure 5-2. Flows Statistic Dialog – Port Parameters

Table 5-2. Flows Statistics - Port Parameters

Parameter	Possible Values / Remarks
Interface	Port to which the values apply. **USER - ETH 1** **USER - ETH 2** **USER - ETH 3** **USER - ETH 4**
Flow ID	The flow ID, assigned when the flow was added.
Flow Name	The flow name, assigned when the flow was added.
User Port Mapping Mode	Determines if the flow is composed of user defined ranges or from unclassified frames. **Unclassified** **User Mapping** **Default: User Mapping**
VLAN ID	The members of a VLAN mapped to the flow. **1 – <highest VLAN ID assigned (max. 4094)** **Default: No members**
VLAN 802.1p	The members of a VLAN P-bit mapped to the flow. **0 – <highest VLAN ID assigned (max. 7)** **Default: No members**
DSCP	The members of a DSCP/TOS priority bit mapped to the flow. **0 – 64** **Default: No members**
IP Precedence	The members of an IP Precedence mapped to the flow. The IP precedence is derived from the TOS bits 0-2 precedence. **0 – 7** **Default: No members**
CoS Method	The method to classify frames to specific services. **Fixed** **Profile** **Default: Profile**
Co Value	Fixed service CoS value **0 – 7** **Default: 0**
CoS Profile	The name of the CoS profile **Default: CoSDefaultProfile1**
Ingress BW Profile	The Ingress Bandwidth Profile index **Unfined** **DefaultIngressBW1** **Default: Undefined**

Parameter	Possible Values / Remarks
SP VLAN Action	The SP-VLAN action for the current flow. **None** **Stack** **Default: Stack** ***Note:*** *This parameter displays for UNI ports only.*
SP VLAN	The VLAN added to the flow when it egresses from the network. **0, 1 – 4094** **Default: 0 (no VLAN specified)** ***Note:*** *This parameter displays for UNI ports only.*
Marking	The method defined for marking, either using an encoding table defined per flow or using a fixed value. **Fixed** - Fixed priority value will be marked on SP-TAG. **Profile** - Marking will be derived from the marking profile attached to the Flow–MIB value 255. ***Note:*** *This parameter displays for UNI ports only.*
Marking Value	An index to the Marking profile. **1 – 8** **Default: 1**
Marking Profile	
CE-VLAN Action	The CE VLAN action for the current flow. **None** **Stack** **Swap** **Default: Stack** ***Note:*** *This parameter appears for UNI ports only.*

4. Click **Statistics** and then select **Upstream** or **Downstream** as desired.

   The statistics for the respective flows appear.

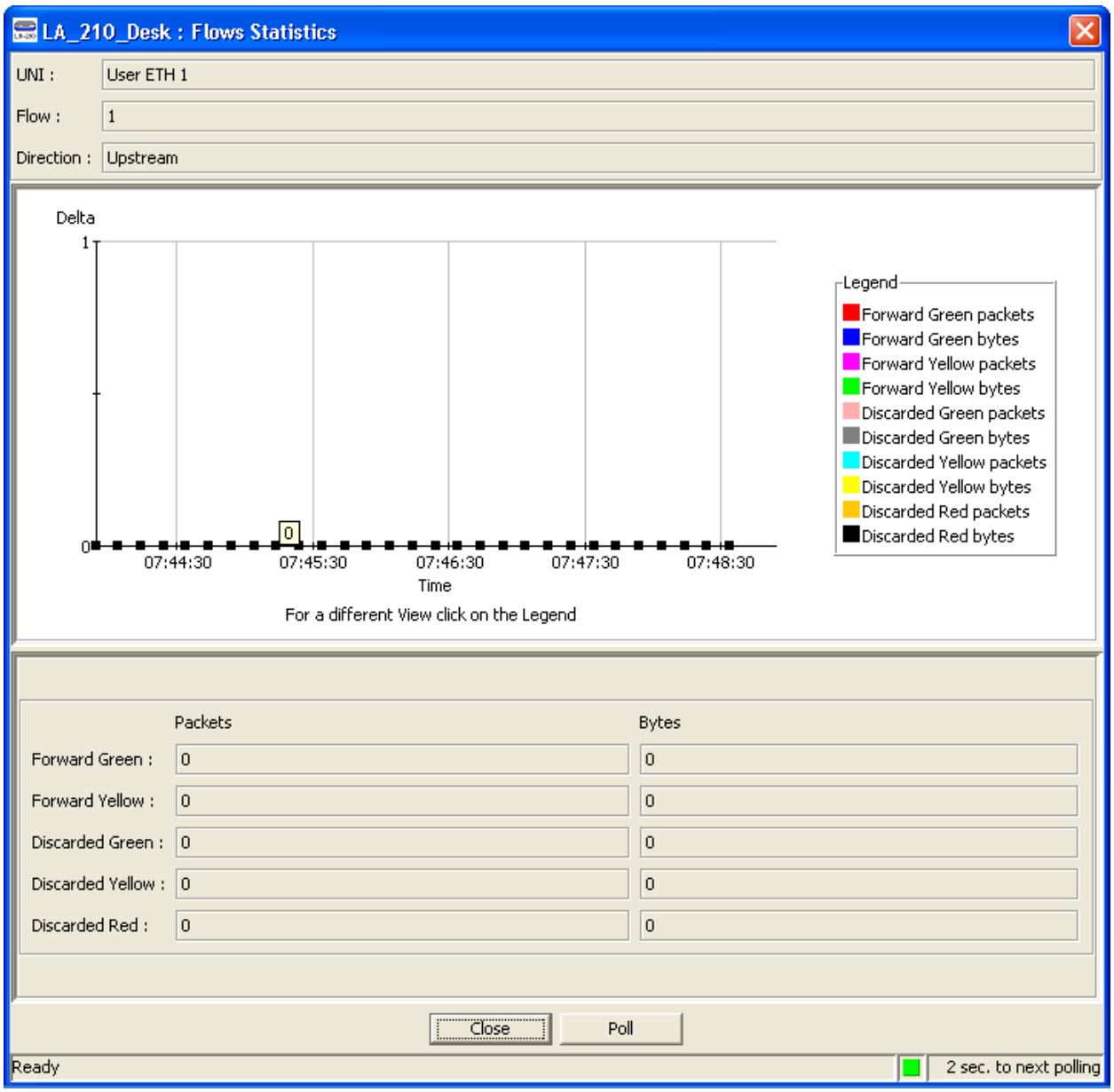


Figure 5-3. Flows Statistics

Viewing Service Statistics

Statistics for classes of service (CoS) associated with a flow can be viewed separately.

➤ **To view CoS statistics:**

1. In the View window, select the system.
2. On the menu bar, click **Statistics > Flows Statistics**.

   The Flows Statistics Main screen is displayed, displaying the configured flows and associated services (CoS) below the associated flows.
3. Select the desired service (CoS).

   The associated service parameters appear.

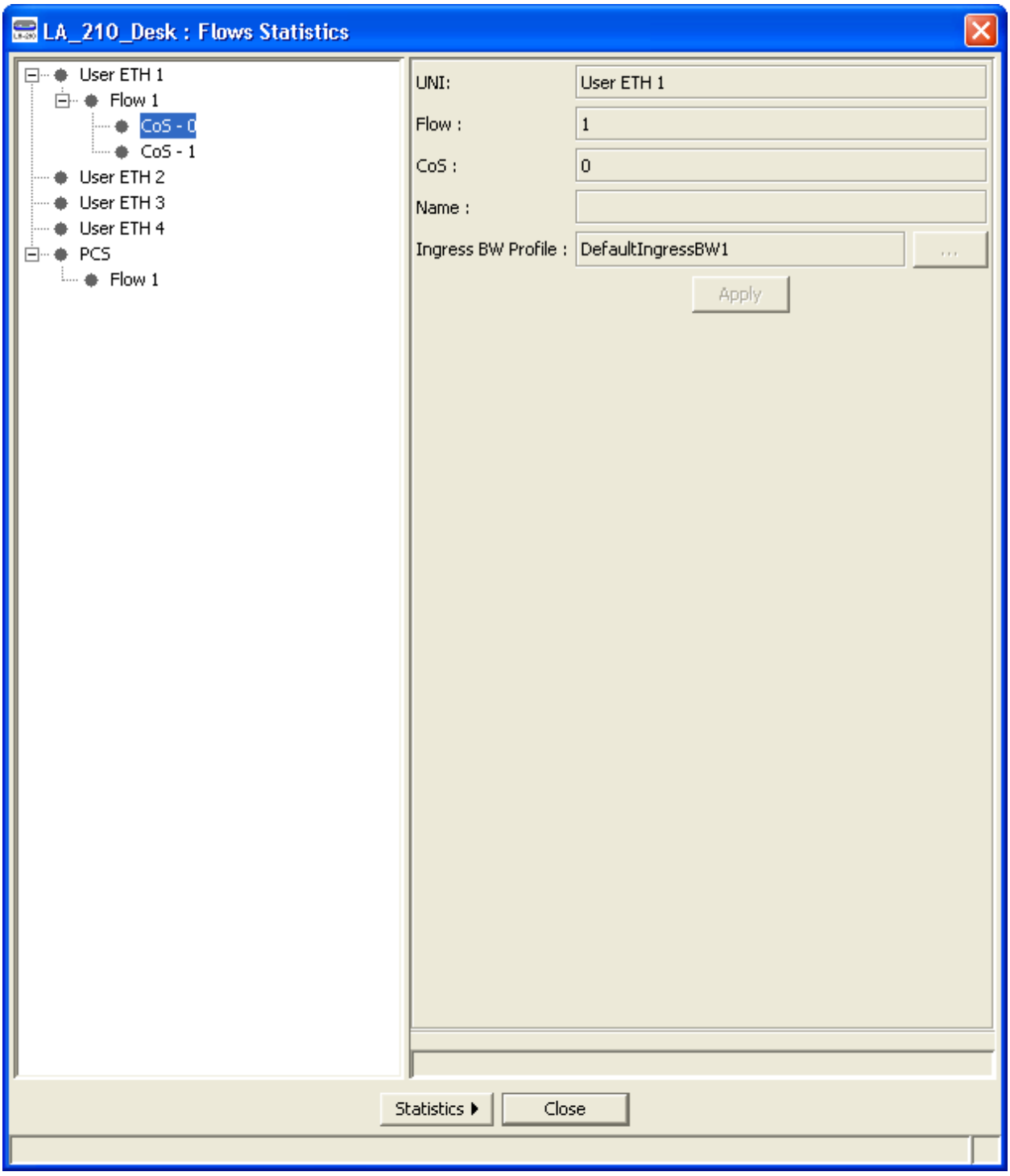


Figure 5-4. Service Statistics

Table 5-3. Flows Statistics - Port Parameters

Parameter	Possible Values / Remarks
UNI	The port associated with the flow to which the relevant CoS applies. **USER - ETH 1** **USER - ETH 2** **USER - ETH 3** **USER - ETH 4**
Flow	The flow ID of the respective flow.
CoS	The CoS associated with this flow.
Name	The name you assigned to this service
Ingress BW Profile	The Ingress BW Profile ID

4. Click **Statistics** and then click **Upstream**.

   The statistics for the respective CoS appear.

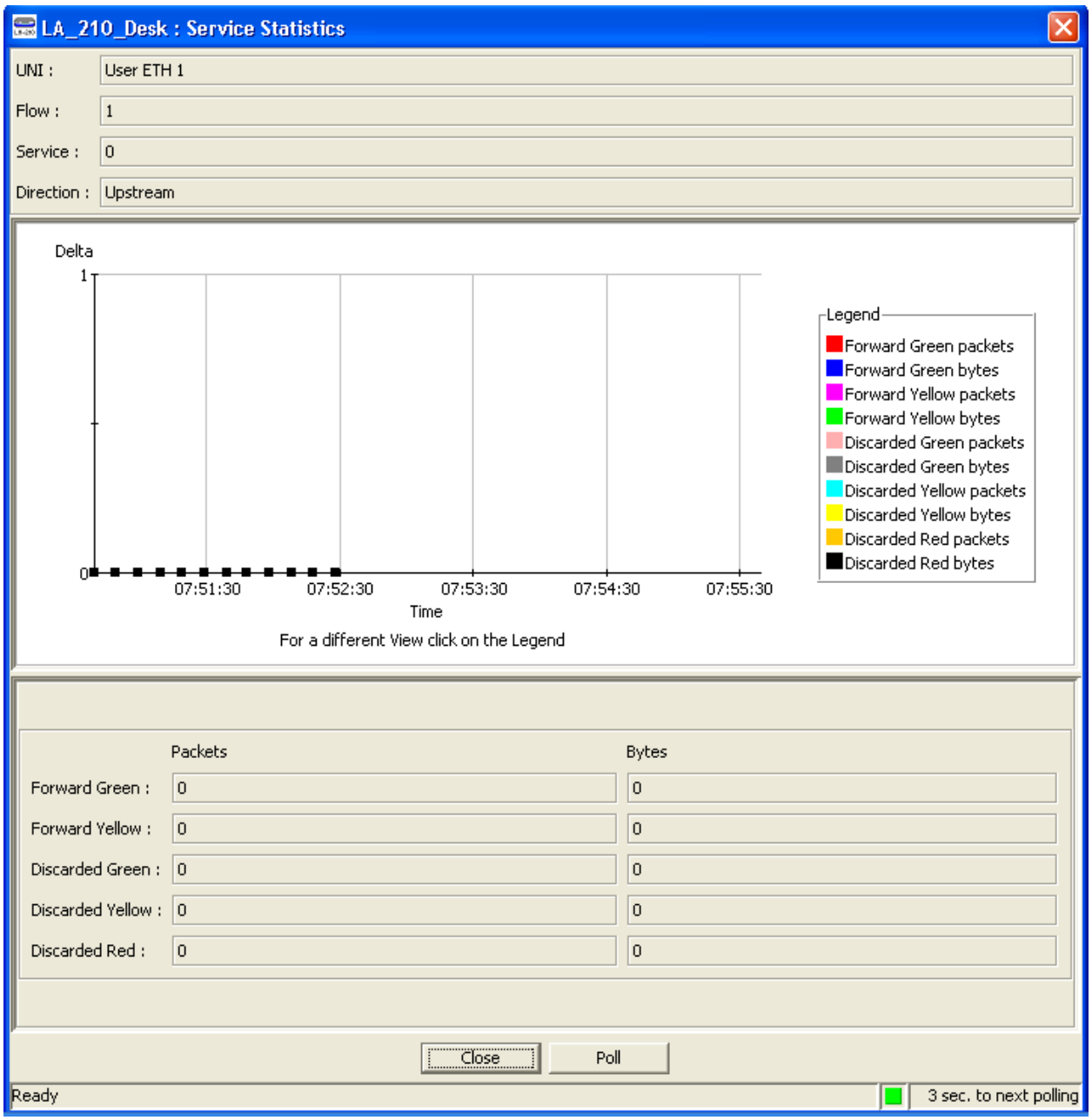


Figure 5-5. Service Statistics

Clearing All Statistics

➤ **To clear all statistics:**

1. In the View window, select the system.
2. On the menu bar, click **Statistics > Clear All Statistics** and confirm your request.

   All statistics are cleared.

5.2 Viewing SHDSL Port Statistics

RADview allows you to view statistics for LA-210's SHDSL ports.

Viewing Line Statistics

RV-EMS/NGN LA-210 allows monitoring the statistics for each SHDSL line separately.

➤ **To view line statistics:**

1. In the View window, select an SHDSL line .

   The Statistic menu for SHDSL lines appears.

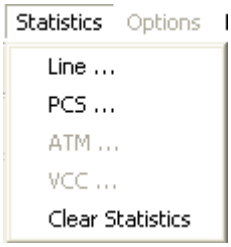


Figure 5-6. Statistics Menu – SHDSL Line

Note *ATM and VCC are available if the **TC Layer** under **Configuration > SHDSL Lines** is set to **ATM**.*

2. On the menu bar, click **Statistics > Line**.

   A dialog appears letting you choose the options (*Figure 5-7*).
3. In the Statistics Options screen, click **Statistics**.

   The selected statistics appear (*Figure 5-8*).

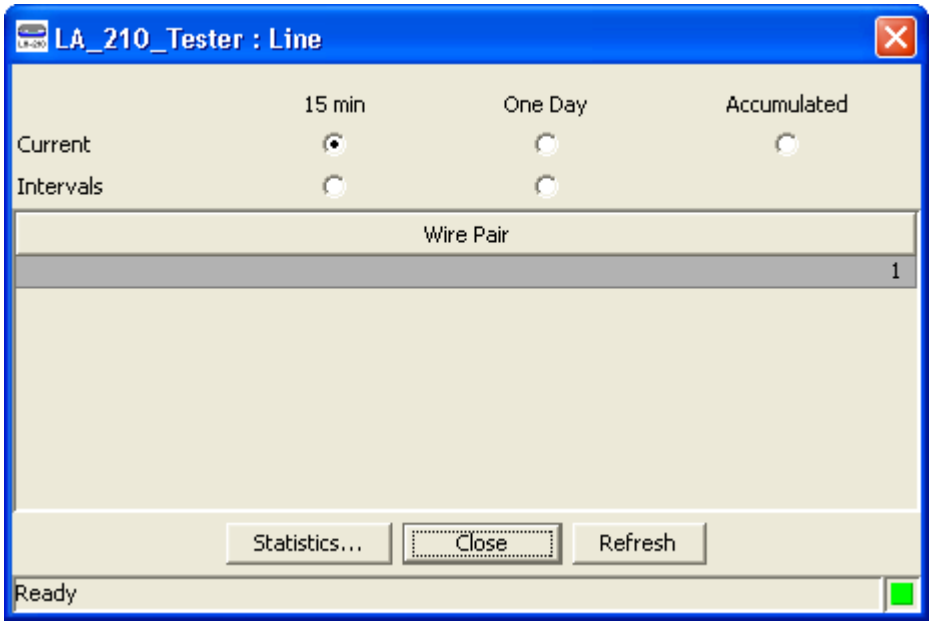


Figure 5-7. Statistic Options – SHDSL Line

Table 5-4. SHDSL Line Statistics Parameters

Parameter	Description
Line	The line number for which the statistics are displayed
Current › 15 min	The statistics counters in current 15 minutes intervals.
Current › One Day	The statistics counters in current 1 day intervals.
Current › Accumulated	Accumulated statistics counters.
Intervals › 15 min	The statistics counters in intervals of 15 minutes.
Intervals › One Day	The statistics counters in intervals of 1 day. (Interval number 0 represents the current counters.)
Wire Pair	The SHDSL line selected

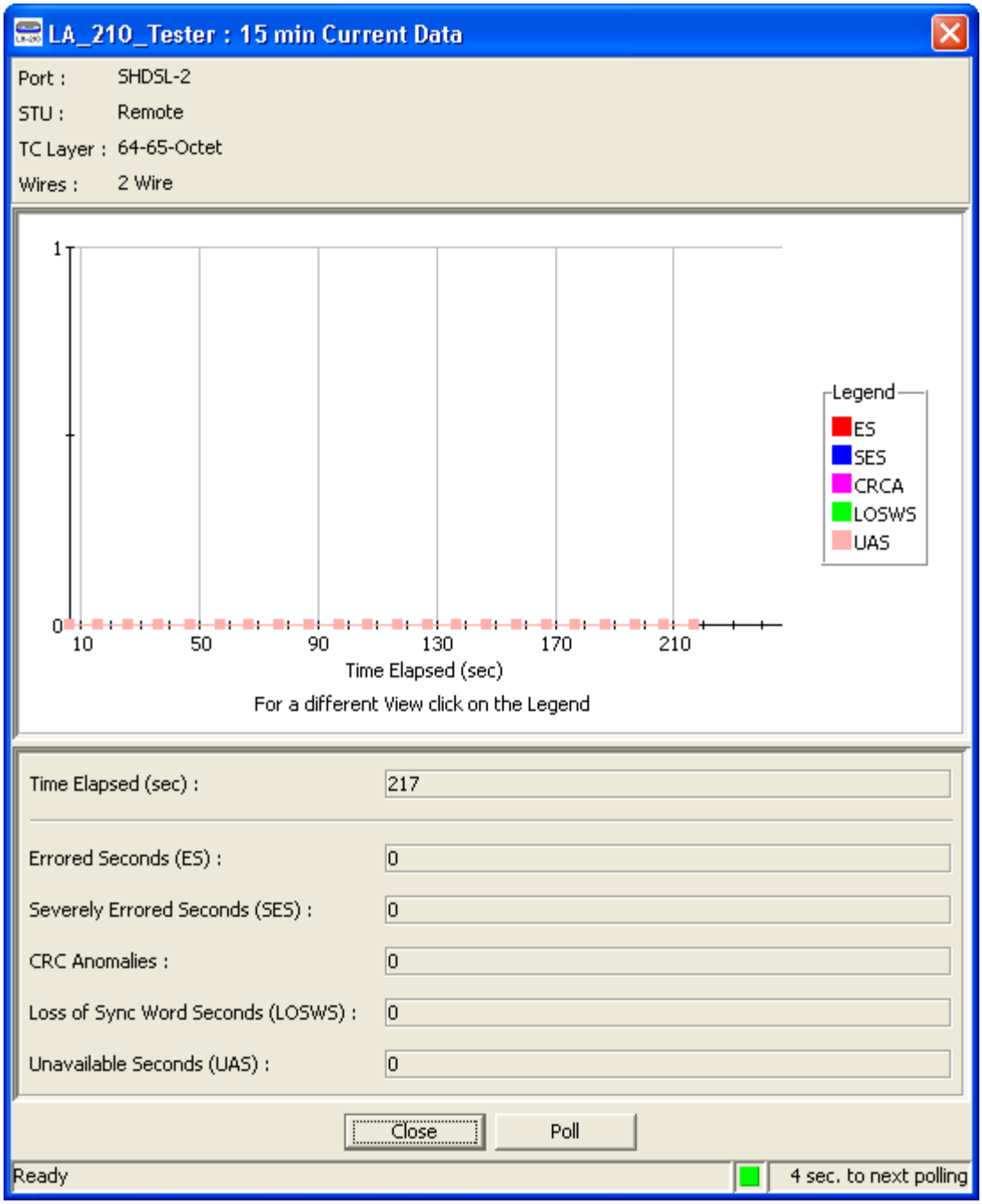


Figure 5-8. SHDSL Line Statistics – 15 Min Current Data

Table 5-5. SHDSL Line Statistics – 15 Min Current Data

Parameter	Description
Time Elapsed (sec)	Time that has elapsed since starting the statistics
Errored Seconds (ES)	The number of Errored Seconds during the interval.
Severely Errored Seconds (SES)	The number of Severely Errored Seconds during the interval.
CRC Anomalies	The number of CRC anomalies during the interval.

Parameter	Description
Loss of Sync Word Seconds (LOSWS)	The number of Loss of Sync Word (LOSW) Seconds during the interval.
Unavailable Seconds (UAS)	The number of unavailable Seconds (UAS) during the interval.

Viewing PCS Statistics

For this parameter to be available, **TC Layer** under **Configuration > SHDSL Lines** must be set to **64-65 Octet**.

➤ **To view PCS statistics:**

1. Open the Statistics menu as explained above and then select **PCS**.

   The PCS Statistics appear.

Table 5-6. PCS Statistics

Parameter	Description
Rx Total Frames	The total number of frames received
Rx Total Errors	The total number of errors received
Rx Total Bytes	The total number of bytes received
Tx Total Frames	The total number of frames transmitted
Tx Total Bytes	The total number of bytes transmitted
Tx Dropped Frames	The number of frames dropped

Viewing ATM Statistics

ATM Statistics are available if **TC Layer** under **Configuration > SHDSL Lines** is set to **ATM**.

➤ **To view ATM statistics:**

2. In the View window, select an SHDSL line .

   The Statistic menu for SHDSL lines appears.

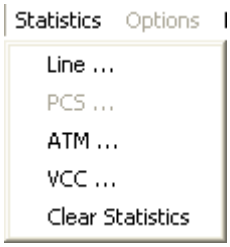


Figure 5-9. Statistics Menu – SHDSL Line

Note *ATM and VCC are available if the **TC Layer** under **Configuration > SHDSL Lines** is set to **ATM**.*

3. On the menu bar, click **Statistics > ATM**.

   The ATM statistics appear.

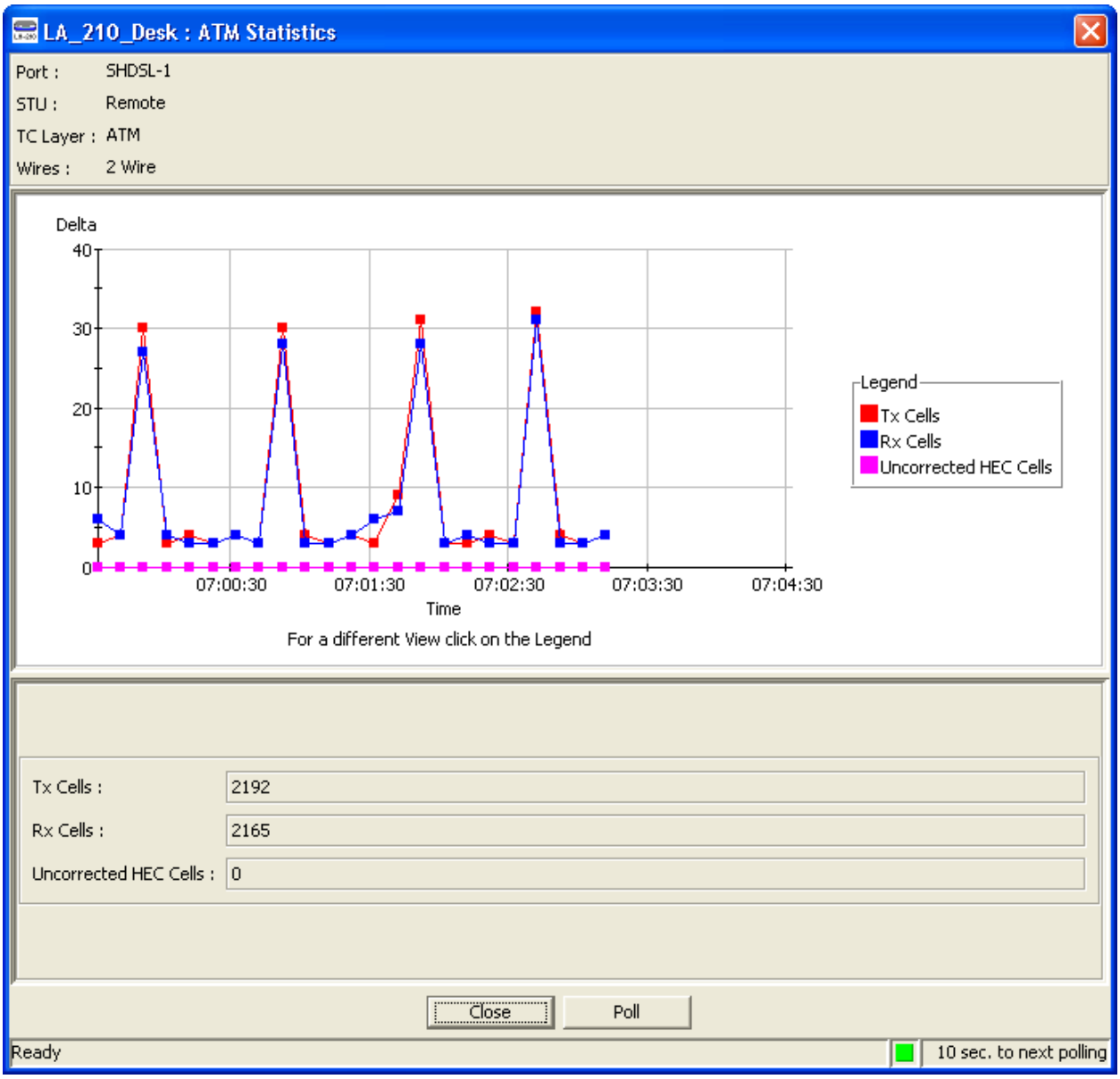


Figure 5-10. Statistics Menu (ATM) – SHDSL Line

Viewing VCC Statistics

VCC Statistics are available if **TC Layer** under **Configuration > SHDSL Lines** is set to **ATM**.

➤ **To view VCC statistics:**

1. In the View window, select an SHDSL line .

   The Statistic menu for SHDSL lines appears.

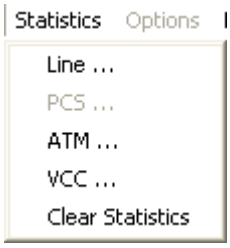


Figure 5-11. Statistics Menu – SHDSL Line

Note *ATM and VCC are available if the **TC Layer** under **Configuration > SHDSL Lines** is set to **ATM**.*

2. On the menu bar, click **Statistics > VCC**.

   The VCC statistics appear.

5.3 Viewing Ethernet Port Statistics

RADview allows you to view statistics for LA-210's Ethernet ports, including counters for frame types (Rx and Tx), errors, and frame sizes (Rx and Tx).

Viewing Rx Frame Types

➤ **To view Rx frame types:**

1. In the View window, select an Ethernet port .
2. On the menu bar, click **Statistics.**

   The Statistic menu for Ethernet ports appears.

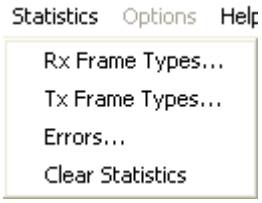


Figure 5-12. Statistics Menu – Port Level

3. Click **Rx Frame Types**.

   The Rx Frames statistics appear.

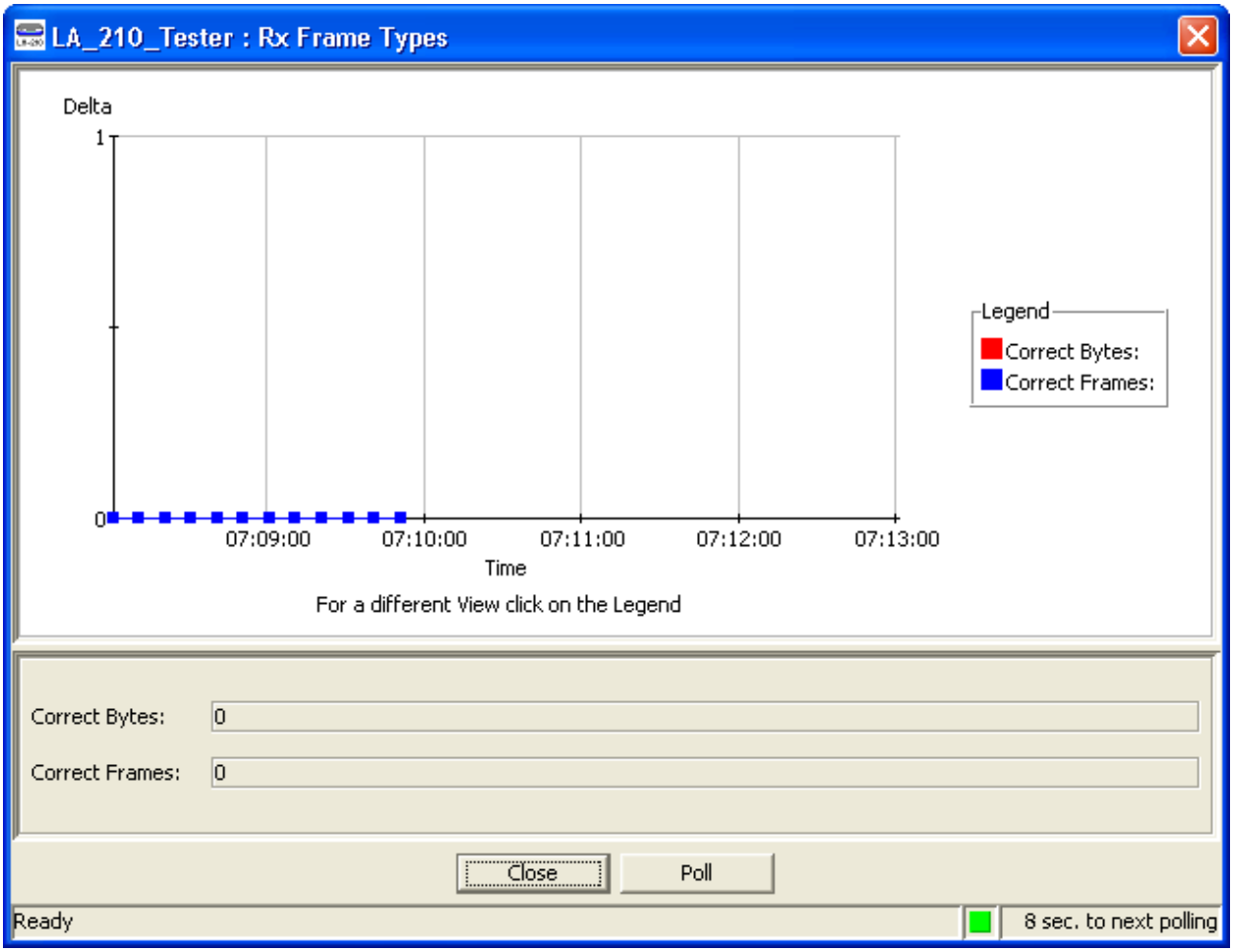


Figure 5-13. Rx Frame Types Dialog Box

4. View the read-only fields, as described in *Table 5-7*.

Table 5-7. Rx Frame Types Dialog Box Parameters

Parameter	Possible Values / Remarks
Correct Bytes	Number of correct bytes received.
Correct Frames	Number of frames successfully received.

Viewing Tx Frame Types

➤ **To view Tx frame types:**

1. In the View window, select a port.
2. On the menu bar, click **Statistics > Tx Frame Types**.

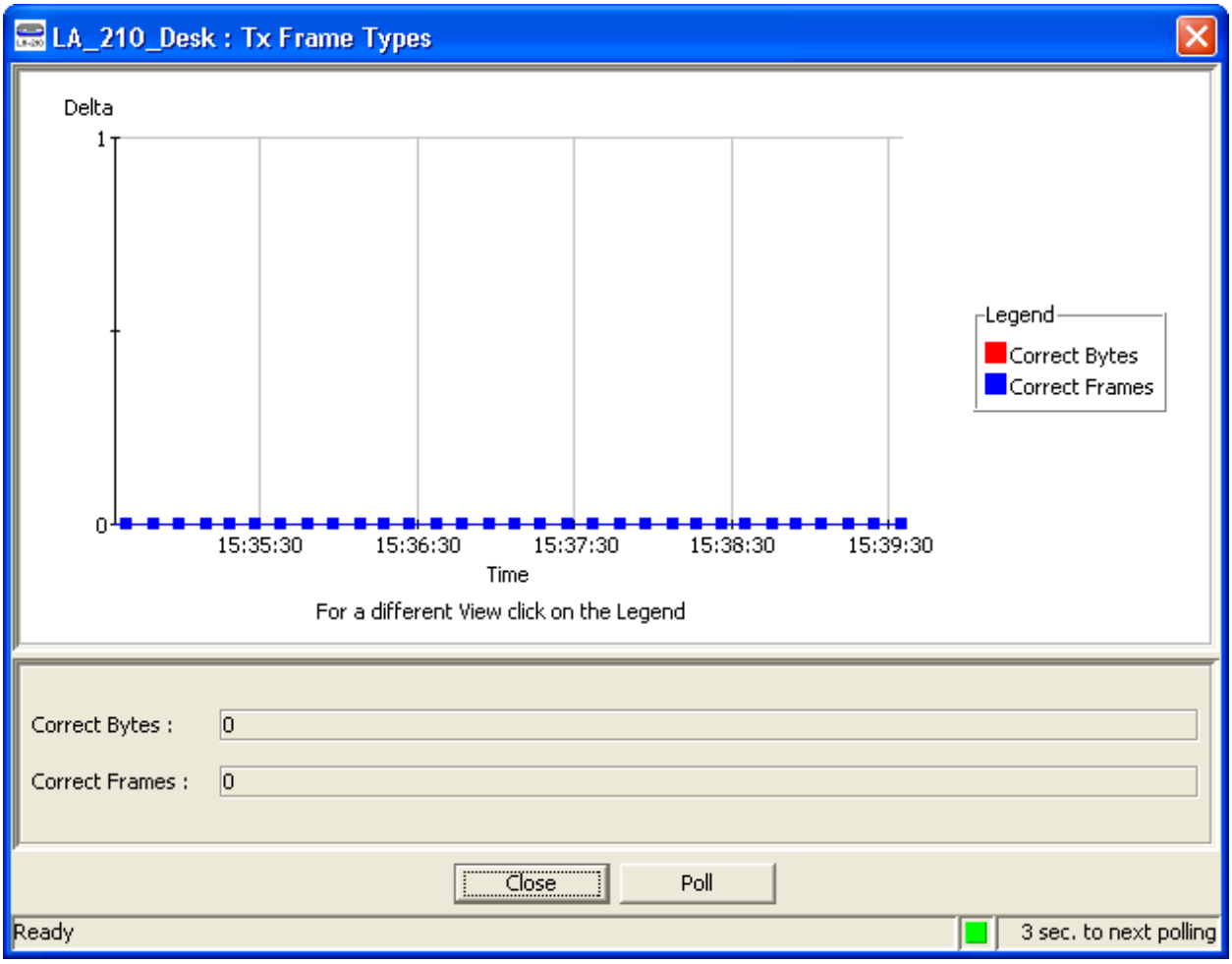


Figure 5-14. Tx Frame Types Dialog Box

Table 5-8. Rx Frame Types Dialog Box Parameters

Parameter	Possible Values / Remarks
Correct Bytes	Number of correct bytes received.
Correct Frames	Number of frames successfully received.

Viewing Errors

➤ **To view errors:**

1. In the View window, select a port.
2. On the menu bar, click **Statistics › Errors**.

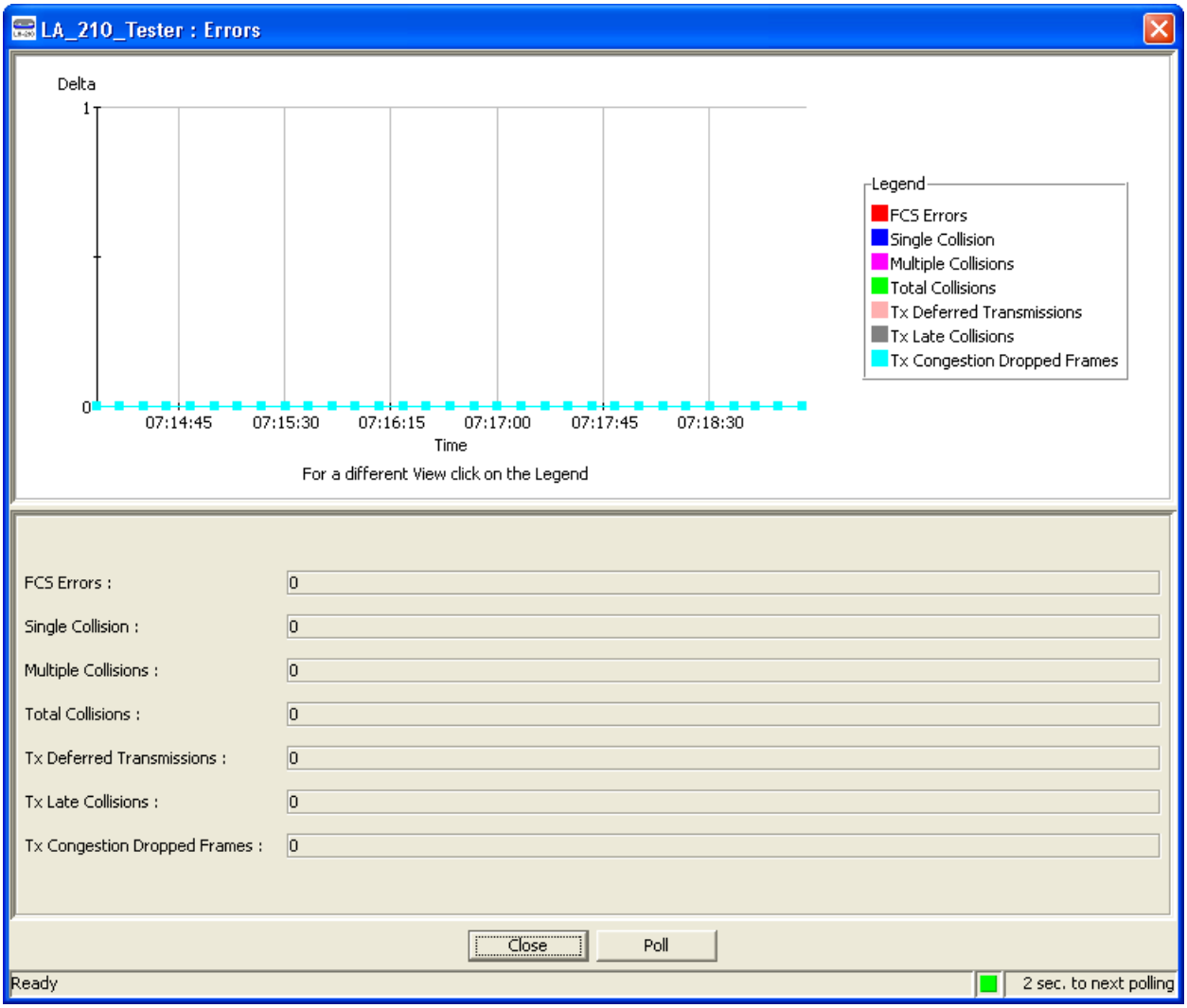


Figure 5-15. Errors Dialog Box

3. View the read-only fields, as described in *Table 5-9*.

Table 5-9. Errors Dialog Box Parameters

Parameter	Possible Values / Remarks
FCS Errors	The number of frames with FCS errors received by the selected port.
Single Collisions	The number of transmission attempts that experienced a single collision.
Multiple Collisions	The number of transmission attempts that experienced multiple collisions.
Total Collisions	The number of all transmission attempts that experienced a collision.
Tx Deferred Transmissions	The number of transmission attempts deferred in order to avoid a collision.
Tx Late Collisions	The number of transmission attempts that experienced late collisions.
Tx Congestion Dropped Frames	The number of frames discarded due to a lack of buffer space.

Clearing All Statistics

1. In the View window, select the desired port.
2. On the menu bar, click **Statistics > Clear All Statistics** and confirm your request.

   All statistics of the selected port are cleared.

5.4 Viewing OAM (CFM) Statistics

You can display end-to-end connectivity and performance monitoring data for the existing flows and the associated services. The statistics are available for the 15-minute and 24-hour periods.

Accessing the OAM (CFM) Statistics Dialog

This section explains how to access the OAM (CFM) Statistics Dialog from where you can choose the desired statistics.

➤ **To access the OAM (CFM) Statistics:**

1. In the LA-210 View window, select the system.
2. On the menu bar, click **Statistics > OAM (CFM**.

   The OAM (CFM) Statistics dialog appears.
3. Select the desired service as illustrated in *Figure 5-16*.
4. Click <**Statistics**> and choose the desired option from the menu.

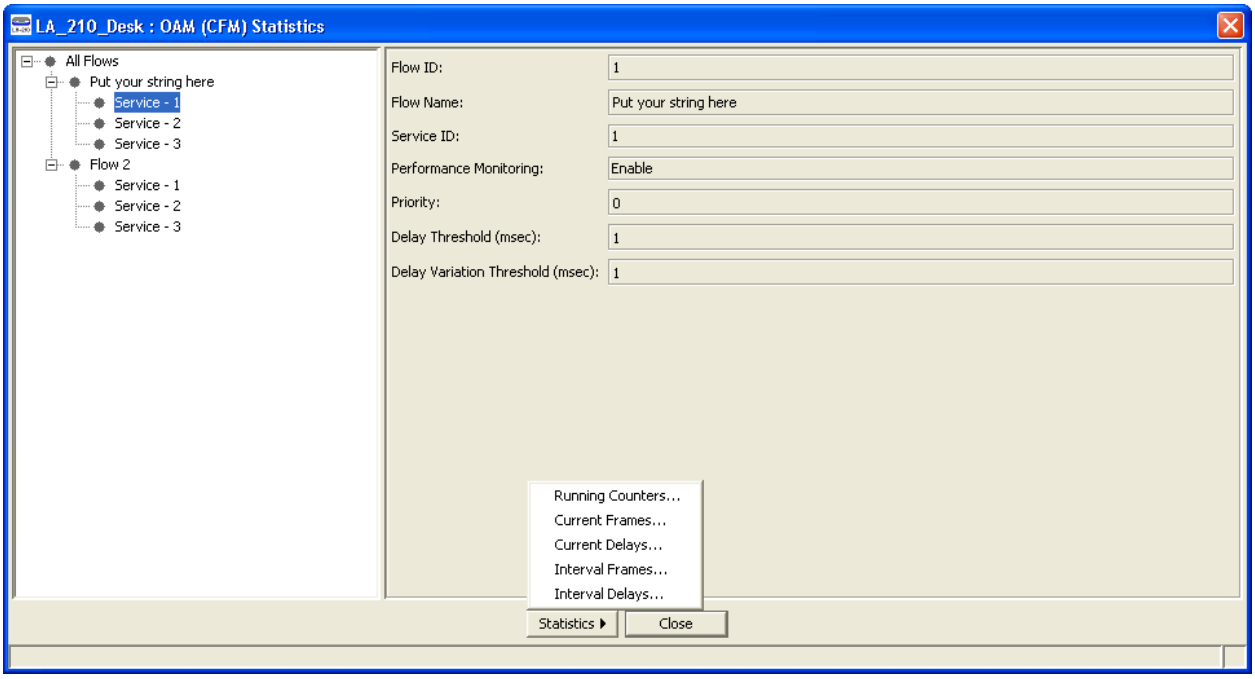


Figure 5-16. OAM (CFM) Statistics Dialog

Viewing Running Counters

➤ **To view running counters:**

- On the OAM (CFM) Statistics dialog, click ‹**Statistics**› and choose **Running Counters** from the menu.

  The Running Counters statistics appear.

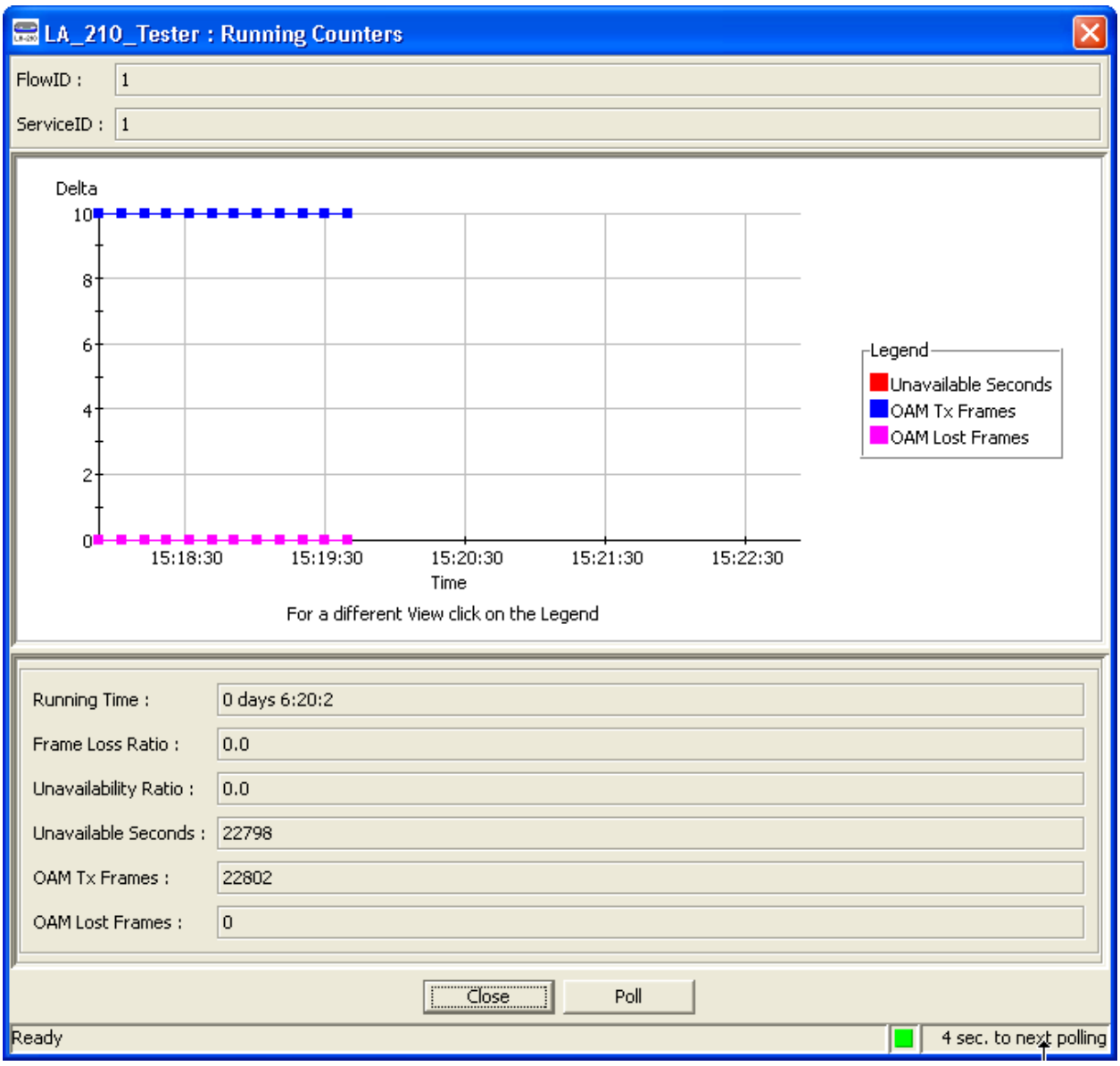


Figure 5-17. OAM (CFM) Statistics – Running Counters

Viewing Current Frames

➤ **To view current frames:**

- On the OAM (CFM) Statistics dialog, click ‹**Statistics**› and choose **Current Frames** from the menu.

  The Current Frames statistics appear.

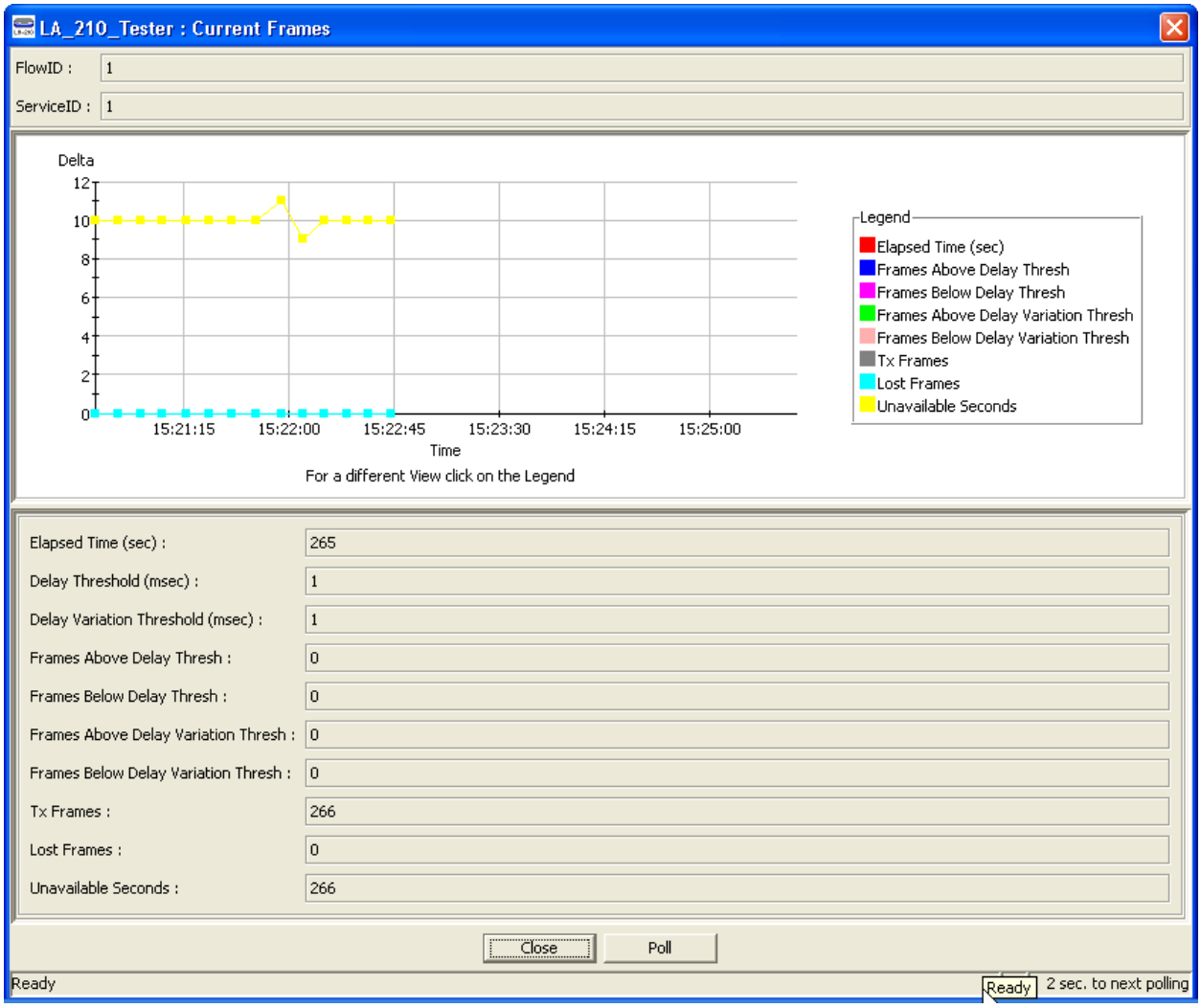


Figure 5-18. OAM (CFM) Statistics – Current Frames

Viewing Current Delays

➤ **To view current delays:**

- On the OAM (CFM) Statistics dialog, click ‹**Statistics**› and choose **Current Delays** from the menu.

  The Current Delays statistics appear.

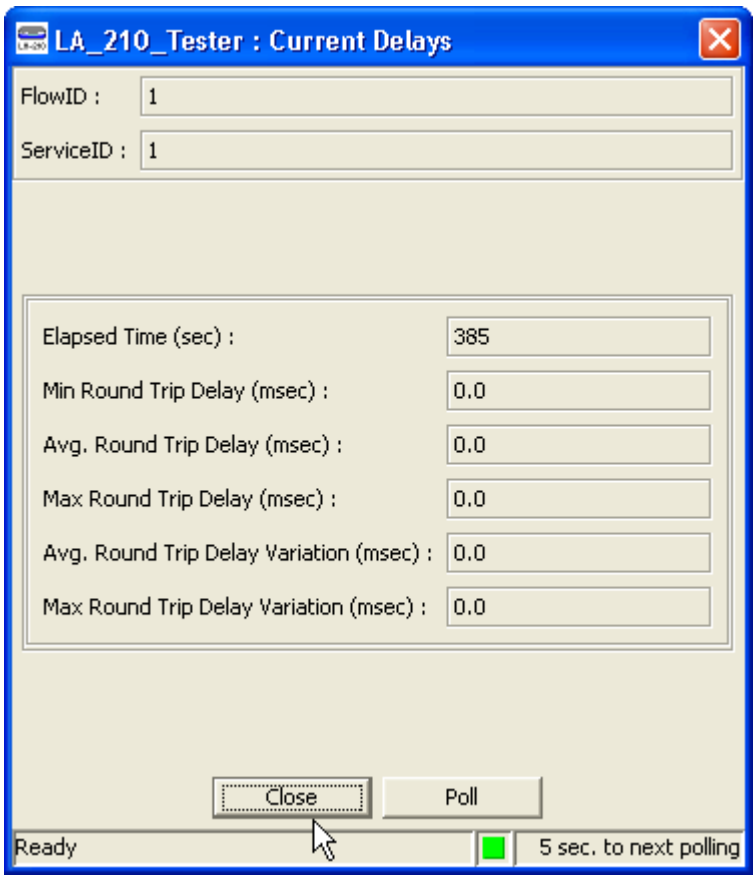


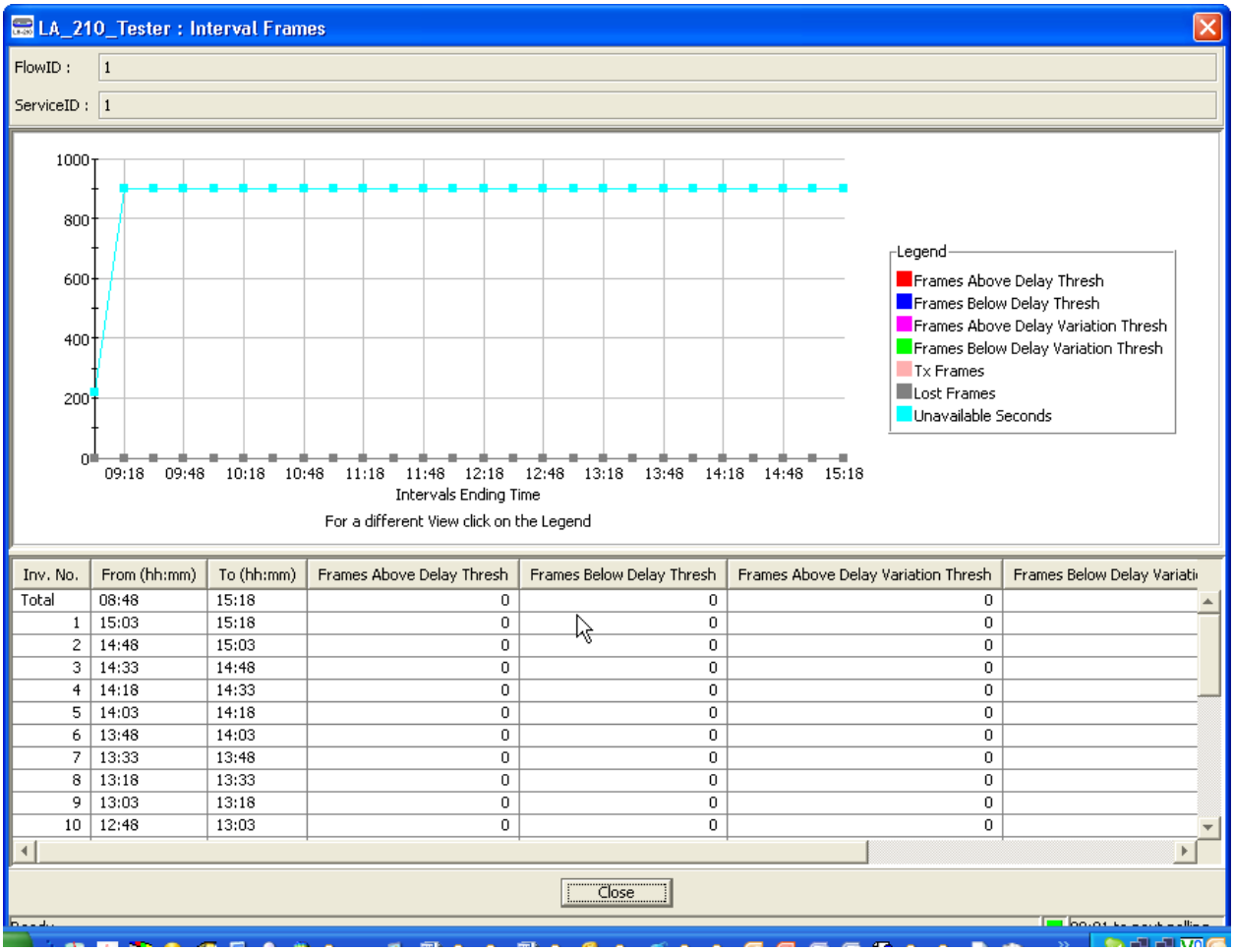
Figure 5-19. OAM (CFM) Statistics – Current Delays

Viewing Interval Frames

➤ **To view interval frames:**

- On the OAM (CFM) Statistics dialog, click ‹**Statistics**› and choose **Interval Frames** from the menu.

  The Interval Frames statistics appear.



Inv. No.	From (hh:mm)	To (hh:mm)	Frames Above Delay Thresh	Frames Below Delay Thresh	Frames Above Delay Variation Thresh	Frames Below Delay Variati
Total	08:48	15:18	0	0	0	
1	15:03	15:18	0	0	0	
2	14:48	15:03	0	0	0	
3	14:33	14:48	0	0	0	
4	14:18	14:33	0	0	0	
5	14:03	14:18	0	0	0	
6	13:48	14:03	0	0	0	
7	13:33	13:48	0	0	0	
8	13:18	13:33	0	0	0	
9	13:03	13:18	0	0	0	
10	12:48	13:03	0	0	0	

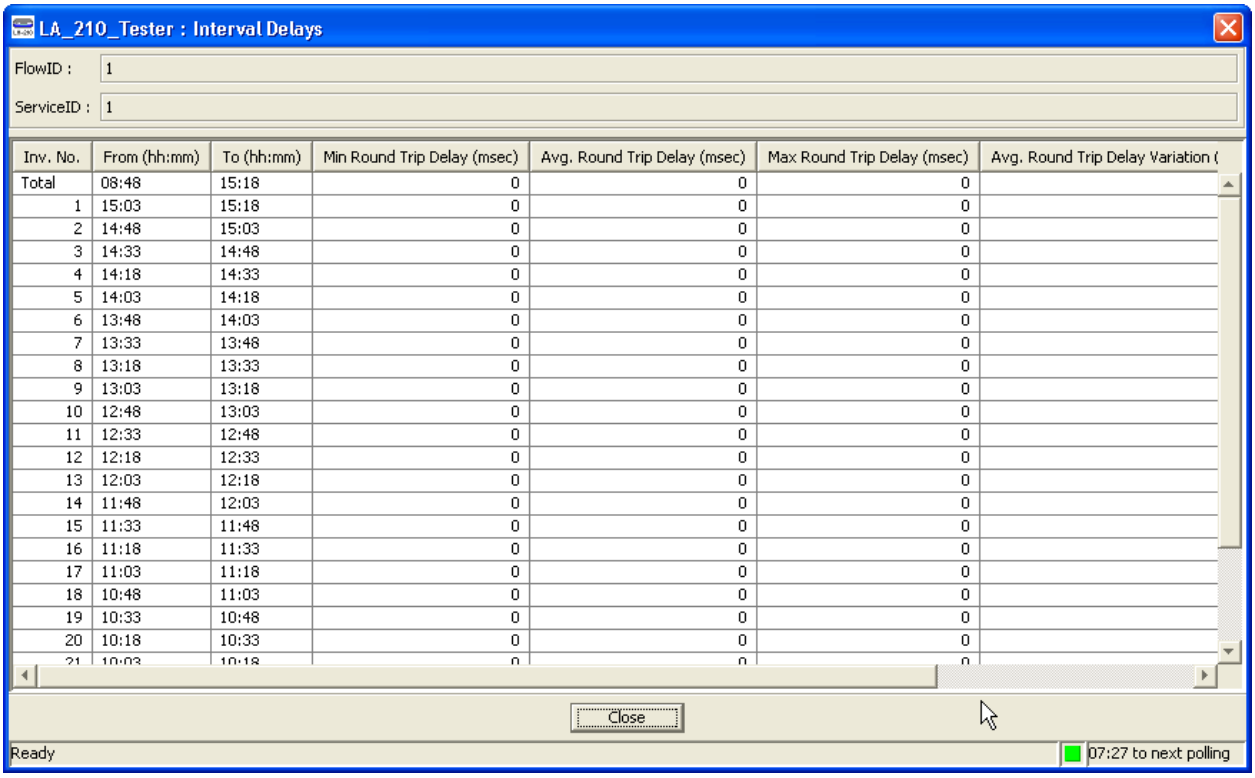
Figure 5-20. OAM (CFM) Statistics – Interval Frames

Viewing Interval Delays

➤ **To view interval delays:**

- On the OAM (CFM) Statistics dialog, click ‹**Statistics**› and choose **Interval Delays** from the menu.

  The Interval Delays statistics appear.



Inv. No.	From (hh:mm)	To (hh:mm)	Min Round Trip Delay (msec)	Avg. Round Trip Delay (msec)	Max Round Trip Delay (msec)	Avg. Round Trip Delay Variation (
Total	08:48	15:18	0	0	0	
1	15:03	15:18	0	0	0	
2	14:48	15:03	0	0	0	
3	14:33	14:48	0	0	0	
4	14:18	14:33	0	0	0	
5	14:03	14:18	0	0	0	
6	13:48	14:03	0	0	0	
7	13:33	13:48	0	0	0	
8	13:18	13:33	0	0	0	
9	13:03	13:18	0	0	0	
10	12:48	13:03	0	0	0	
11	12:33	12:48	0	0	0	
12	12:18	12:33	0	0	0	
13	12:03	12:18	0	0	0	
14	11:48	12:03	0	0	0	
15	11:33	11:48	0	0	0	
16	11:18	11:33	0	0	0	
17	11:03	11:18	0	0	0	
18	10:48	11:03	0	0	0	
19	10:33	10:48	0	0	0	
20	10:18	10:33	0	0	0	
21	10:03	10:18	0	0	0	

Figure 5-21. OAM (CFM) Statistics – Interval Delays

Chapter 6

Security Management

This chapter describes how to manage LA-210 security.

- *Understanding RADview User Security Levels*
  - *Monitor*
  - *Technician*
  - *Operator*
  - *Administrator*
- *Configuring Host Parameters*
- *Configuring SNMP*
- *Configuring Management Access*.

6.1 Understanding RADview User Security Levels

RADview/OV, when running on a UNIX based operating system, supports the users and permissions security feature. This section presents an overview of the four user security levels: Monitor, Technician, Operator, and Administrator. The user security levels are managed by RADview-EMS/NGN via the **Security > User Manager** menu path. For further details, refer to the RADview-EMS/NGN NMS User's Manual.

This security feature defines the following different types of users:

- Monitor
- Technician
- Operator
- Administrator

The above list is written in order of increasing access rights; the Monitor has the fewest access rights and the Administrator has the most access rights. The more privileged access level has access to all of the features to which the less privileged access level has access.

Each type of user has a different level of permission to access LA-210 application data. The permissions are per menu and per dialog box. Some users have permission for read and write (RW) access to all of the menus and dialog boxes; others have only partial access. Some users have read-only (RO) access or are prohibited access to some of the menus and dialog boxes.

For example: a Technician level user has more access rights than a Monitor level user. Therefore, if a Monitor level user has write (Set) permission to the data in a specific dialog box, then a Technician level user also has write permission.

The menus always look the same for all users. If a user attempts to display a dialog box or to select a menu item that he is not permitted to access, a message will be displayed stating that he has no permission to access that function.

For example: clicking a **Set** button, or another RW function, requires read and write access. Therefore, a user with read-only access who tries to access these functions will be denied access.

Only an Administrator can add or remove nodes from the Service Center map. For further details, refer to the chapter on Security in the RADview-EMS/NGN System Manual.

Monitor

A user at the Monitor level may monitor all types of information related to the managed device, but cannot do any action that causes any change in the device. This means that any action that writes data to the agent is disallowed. Examples of write (set) operations include:

- Set
- Apply
- Delete
- Change
- Add
- Remove

These operations are disallowed, whether from attempted from within a dialog box or selected via a menu option. The NMS provides feedback on a disallowed operation in one of the following ways:

- To obtain maximum information, the Monitor can change any fields (edit, combo-box, etc.) in a dialog box, but these changes cannot be activated because the write operations are blocked. Attempting to activate a change will be rejected, and the Monitor user will be notified via an information dialog box.
- Some dialog boxes do not provide any additional information, but merely allow changes in the system. Since a Monitor cannot use these dialog boxes, they cannot be displayed at all at this level.

A Monitor level user has write access to the following (system level) LA-210 Agent functions:

- Poll the LA-210 Agent
- View the history log

Technician

The Technician can perform all of the Monitor level functions (such as those that were just listed), and, in addition, is allowed write access to the following (system level) LA-210 function:

- Clear the history log

The responses to disallowed actions, beyond the Technician level permissions, are handled in the same manner as for the Monitor level.

Operator

The Operator is granted all of the permissions needed to perform any task related to LA-210 management. The Operator can also perform all of the Monitor and Technician level functions.

Administrator

The Administrator has all of the Operator permissions and, in addition, has access to the RADview-EMS/NGN User Manager function (this function is not accessible by the Operator). The Administrator can also perform all of the Monitor, Technician, and Operator level functions.

6.2 Configuring Host Parameters

RADview allows you define a dedicated management VLAN and assign a priority level to it. IP settings can be viewed from this screen, but must be configured the terminal application or ConfiguRAD.

➤ **To configure host parameters:**

1. In the LA-210 View window, select the system.
2. On the menu bar, click **Options > Host**.

   The Host dialog appears (*Figure 6-1*).
3. Set the parameters fields as detailed in *Table 6-1*.
4. Click **Set**.

   The parameters are set.

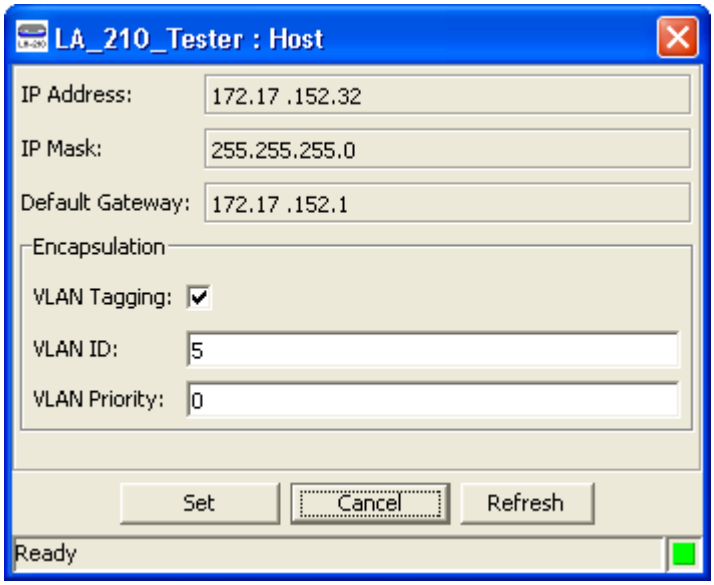


Figure 6-1. Host Dialog Box

Table 6-1. Host Parameters

Parameter	Possible Values / Remarks
IP Address	The unit's IP address (read-only). ***Note:*** *The IP address must be configured using the Terminal application.*
IP Mask	The subnet that the unit belongs to (read-only). ***Note:*** *The subnet mask must be configured using the Terminal application.*
Default Gateway	The default gateway (read-only). ***Note:*** *The default gateway must be configured using the Terminal application.*
VLAN Tagging	Enables specifying a VLAN ID and a VLAN priorty, for example to create a dedicated management VLAN. **Checked** (enabled) **Cleared** (disabled) **Default: Cleared**
VLAN ID	Specifies the VLAN ID **1–4094**
VLAN Priority	Specifies the priority of that VLAN **0–7**

6.3 Configuring SNMP

RADview allows you to view and modify SNMP settings; enabling you to specify the management station(s) that can transmit or receive LA-210 traps. There may be between one to ten management stations defined.

You cannot change the number of management stations, or the Manager IDs, but you can change the IP address(es).

➤ **To view or specify the management station IP address to which to send traps:**

1. In the LA-210 View window, select the system.
2. On the menu bar, click **Options > Manager List**.

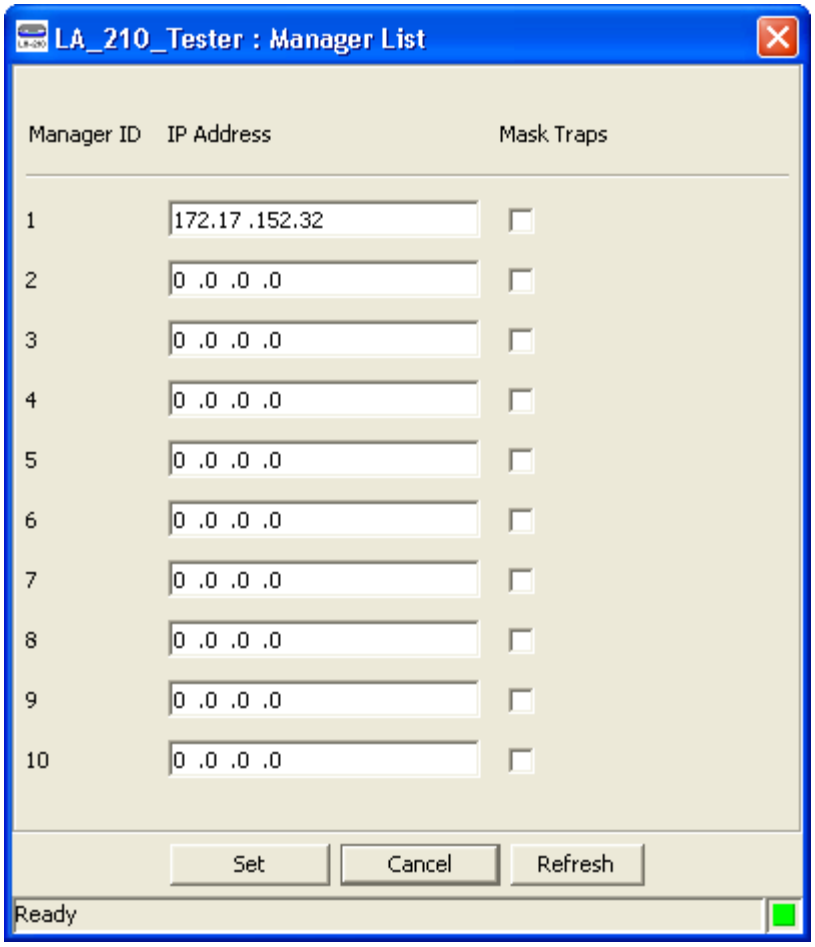


Figure 6-2. Manager List Dialog Box

3. Fill in the fields, as described in *Table 6-2*.
4. Change the IP addresses, as required.
5. To configure that the specific manager will not receive traps from the device, select the relevant **Mask Traps** check box adjacent to that address.
6. To configure that the specific manager will receive traps from the device, clear the relevant **Mask Traps** check box adjacent to that address.
7. Set the **UDP Trap Port**.
8. Click ‹**Set**› to implement the changes.

   Upon set, the NMS checks the IP Address. If it is 0.0.0.0 and Mask Trap check-box is checked, the following error-message appears in the status bar: "Illegal IP Address when Traps are Masked".

Table 6-2. Manager List Dialog Box Parameters

Parameter	Possible Values / Remarks
Manager ID	Index of a specific IP address. **1–10** Read Only
IP Address	Destination address of the traps, a management station used to access LA-210. Setting the IP address to **0.0.0.0** removes the entry. **IP address format: xx.xx.xx.xx**
Mask Trap	Type of traps the agent should mask and not send to the NMS. **Cleared** (not selected): The specific manager will receive traps from the device **Checked** (selected): The specific manager will not receive traps from the device. **Default: Cleared**

6.4 Configuring Management Access

RADview LA-210 enables/disables Telnet access, and Web management access.

➤ **To enable/disable Telnet and Web management accesses:**

1. In the LA-210 View window, select the system.
2. On the menu bar, click **Options > Access**.

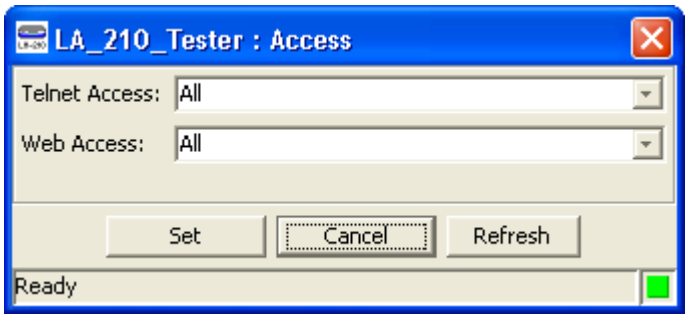


Figure 6-3. Management Access Dialog Box

3. Fill in the fields, as described in *Table 6-3*.
4. Click ‹**Set**› to implement the change(s).

Table 6-3. Management Access Parameters

Parameter	Possible Values / Remarks
Telnet Access	Enables/disables accessing the device via Telnet as follows: **Disable:** no one will be allowed to access the device via Telnet **All:** all users are allowed Telnet access **Managers Only:** only manager stations listed in the manager's list are allowed Telnet access **Secured Mode Only:** all users are allowed Telnet access and only secure data will be accepted **Secured Mode Managers Only:** only manager stations listed in the manager's list are allowed Telnet access and only secure data will be accepted **Default: All**
Web Access	Enables/disables accessing the device via the Web as follows: **Disable:** no one will be allowed to access the device via Web **All:** all users are allowed Web access **Managers Only:** only manager stations listed in the manager's list are allowed Web access **Secured Mode Only:** all users are allowed Web access and only secure data will be accepted **Secured Mode Managers Only:** only manager stations listed in the manager's list are allowed Web access and only secure data will be accepted **Default: All**

Chapter 7

Fault Management

This chapter discusses how to manage faults and perform diagnostic testing for the entire LA-210 system using RADview-EMS/NGN.

This chapter explains how to perform the following tasks:

- *Managing the Event Reporting for OAM (CFM)*
- *Managing the History Log*
  - *Viewing the History Log*
  - *Clearing the History Log*

7.1 Managing the Event Reporting for OAM (CFM)

You are able to specify sets of reporting and response parameters for the OAM (CFM) reporting. To do so, you have to access the OAM (CFM) service dialog from the Fault menu.

➤ **To access the OAM (CFM) services:**

1. In the LA-210 window, select the system.
2. On the menu bar, click **Fault** > **Event Reporting Configuration for OAM (CFM) Services**.

   A message appears that only proprietary OAM services are supported at present.
3. Click <**OK**>.

   The OAM Flow dialog appears.

Note *In order to enable the event reporting for OAM (CFM),* ***OAM Mode*** *in the OAM Flow dialog and* ***Performance Monitoring*** *in the OAM (CFM) Service dialog must be enabled.*

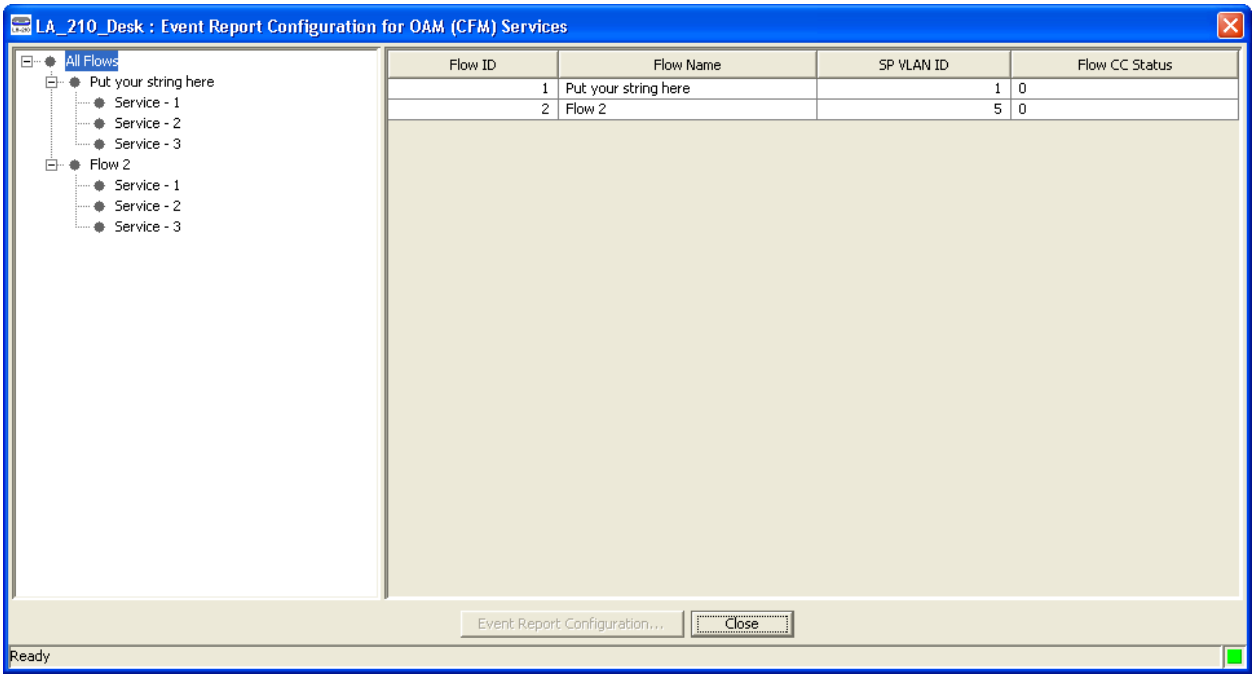


Figure 7-1. Event Reporting Dialog for OAM (CFM) Services

➤ **To access the OAM (CFM) event reporting configurations of a service:**

- In the Navigation pane to the left, select the desired service and click ‹**Event Report Configuration**›.

  The OAM Event Reporting Configuration dialog appears with event report configurations that have been previously configured for the selected service (*Figure 7-2*).

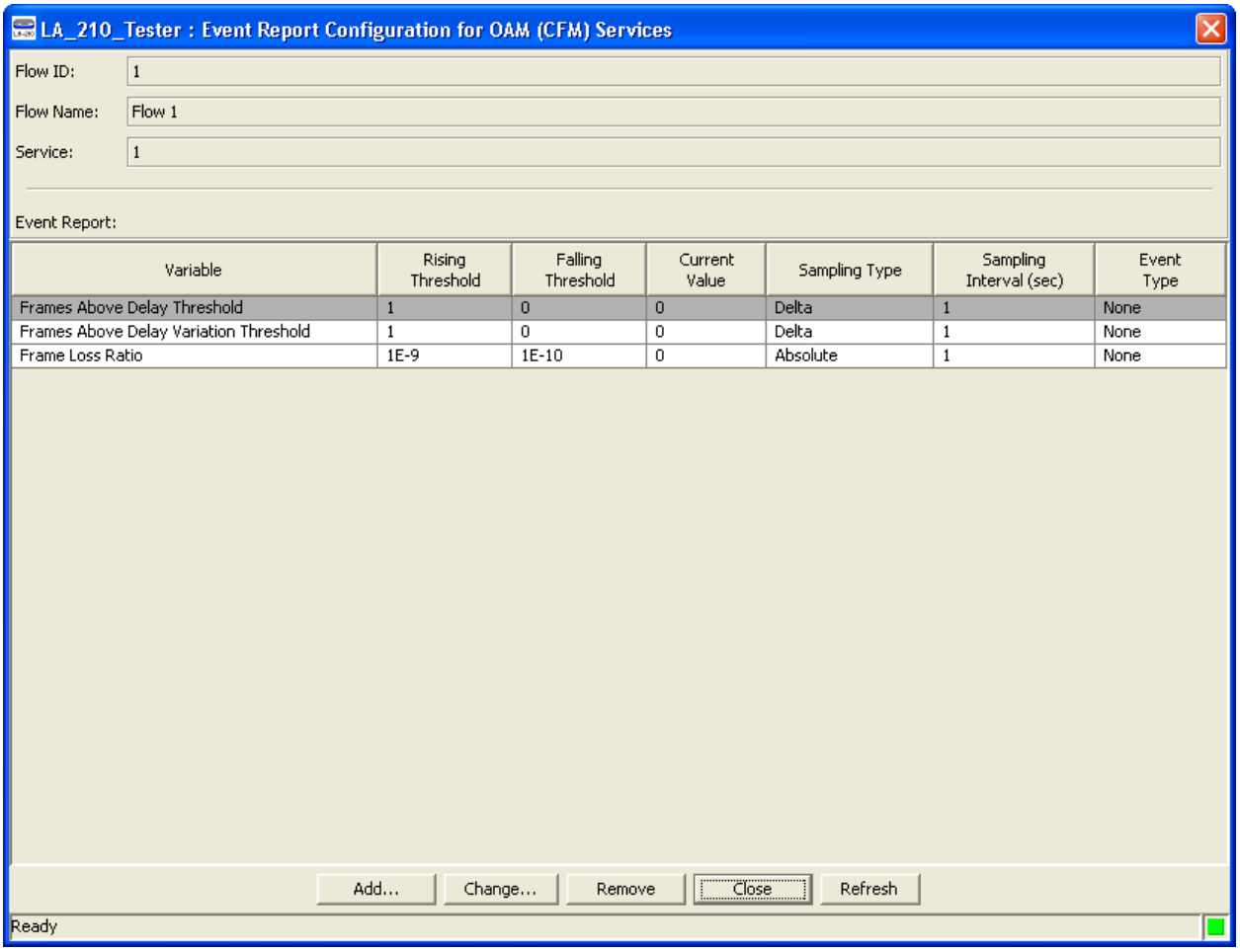


Figure 7-2. Event Reporting Configurations for OAM (CFM) Services

➤ **To add a configuration:**

1. In the Event Reporting Configurations list, click ‹**Add**›.

   The Add Event Reporting Configurations Services dialog appears.

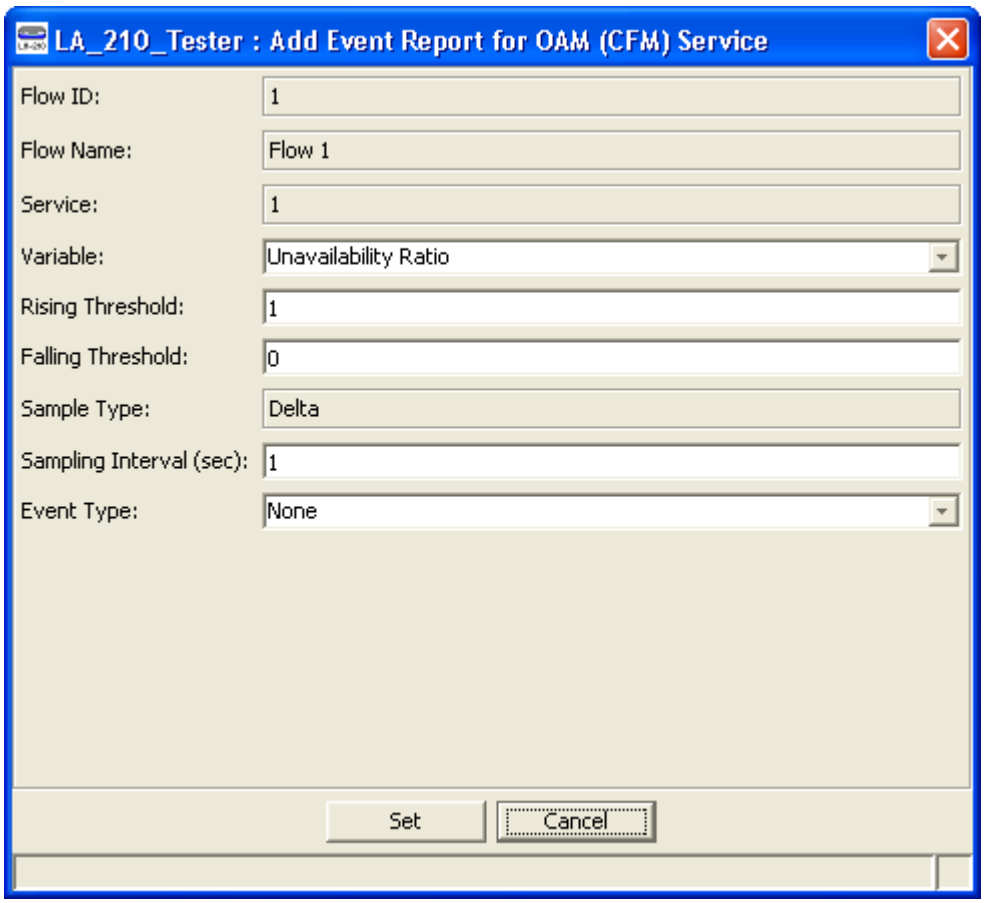


Figure 7-3. Add Event Reporting Configurations for an OAM (CFM) Service

Table 7-1. Event Reporting Configurations for a an OAM (CFM) Service

Parameter	Possible Values / Remarks
Flow ID	The ID of the flow associated with the service for which to add the event reporting configuration. Read-only
Flow Name	The name of the flow associated with the service for which to add the event reporting configuration. Read-only
Service	The service for which to add the event reporting configuration.
Variable	**Unavailability Ratio**. Ratio of unavailable frames versus available ones. **Frames above Delay Threshold**. Frames above the defined accepted threshold **Frames above Delay Variation Threshold** **Frame Loss Ratio**. Ratio of lost frames

Parameter	Possible Values / Remarks
Rising Threshold	A value above this threshold within the sampling interval for the specified counter will be considered a rising event. For **Frames Above Delay** or **Frames Above Delay Variation**: **1–2147483647** For **Frame Loss Ratio** or **Unavailability Ratio**: **1E-3, 1E-4, 1E-5, 1E-6, 1E-7, 1E-8, 1E-9, 1E-10** **Default: 1**
Falling Threshold	A value below this threshold within the sampling interval for the specified counter will be considered a falling event. For **Frames Above Delay** or **Frames Above Delay Variation**: **0–2147483647** For **Frame Loss Ratio** or **Unavailability Ratio**: **1E-3, 1E-4, 1E-5, 1E-6, 1E-7, 1E-8, 1E-9, 1E-10** **Default: 1**
Sample Type	**Delta** **Absolute**
Sampling Interval (sec)	The interval in seconds above which the data is sampled and compared with the rising and falling thresholds. **1–2147483647**
Event Type	The Event type sent out after passing the threshold. **None** **History Log** **Trap** **History Log & Trap** **Default: None**

➤ **To edit a configuration:**

1. In the Event Reporting Configurations list (*Figure 7-2*), select the desired event reporting configuration and click ‹**Change**›.

   The Change Event Reporting Configurations Services dialog appears with parameters to edit.

2. Modify the available parameters as outlined in *Table 7-1* and then click ‹**Set**›.

➤ **To remove a configuration:**

- In the Event Reporting Configurations list (*Figure 7-2*), select the desired configuration and click ‹**Remove**›.

  The selected configuration is removed from the list.

➤ **To update the Event Reporting Configurations list:**

- In the Event Reporting Configurations list (*Figure 7-2*), click ‹**Refresh**›.

  The Event Reporting Configurations list is updated.

7.2 Managing the History Log

Viewing the History Log

You can view a history log of all the alarms listed in the LA-210 System Alarm Buffer. The System Alarm Buffer contains all the unmasked alarms recorded for the whole device.

➤ **To view the history log:**

1. In the LA-210 window, select the system.
2. On the menu bar, click **Fault** > **History Log**.

   The History Log appears.

   For the list of events, see *Table 7-3*

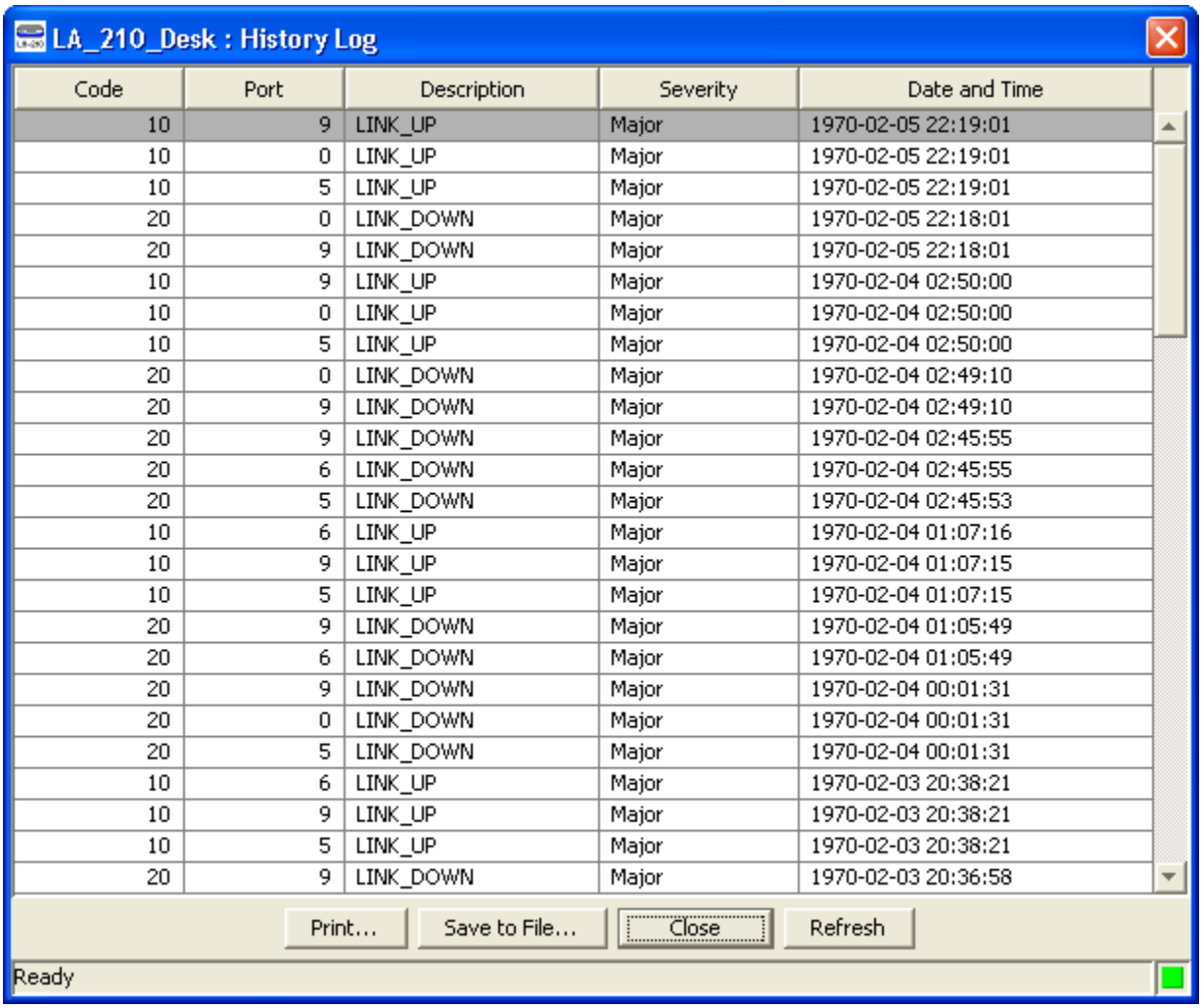


Figure 7-4. History Log

3. View the fields, as described in *Table 7-2*.
4. Do one of the following:

- Sort the alarm buffer list by clicking on one of the columns on the list. You can sort each column independently. The Alarm Buffer list is sorted according to the Date and Time column by default with the oldest shown on the first line.
- To send the Alarm Buffer to a printer, click <**Print**>
- To save the Alarm Buffer to a file, click <**Save to File**>, select a location to where to save the file, name the file and click <**Save**>.
- To retrieve/display the next 500 entries in the Alarm Buffer, click <**Next**>.

  The history log can have a maximum of 1000 entries, and displays the first 500 upon opening the dialog box, and the last 500 entries upon clicking <**Next**>.
- To update the list, click <**Refresh**> or exit the window by clicking <**Close**>.

Table 7-2. History Log Alarm List Dialog Box Parameters

Parameter	Possible Values / Remarks
Code	The error code associated with the alarm
Port	The logical port where the error occurred.
Description	Description of the alarm. Read-Only
Severity	The severity of the alarm **Info** **Minor** **Major** **Critical**
Date & Time	Date and time the alarm occurred. Date format: **yyyy-mm-dd** Time format: **hh:mm:ss** Read-Only

Table 7-3. RADview-EMS/NGN LA-210 Events

Event	Description
Cold Start	Unit has been restarted.
Fatal Error XX	Hardware failure has been detected.
Fatal Error At XX Line XX	Hardware failure has been detected.
System User Reset	Overall reset was performed by the user.
Link Down (Port 1 \ Port 2 \ Port 3)	Network or user Ethernet port has been disconnected.
Link Up Port (Port 1 \ Port 2 \ Port 3)	Network or user Ethernet port has been connected.
Link Admin Down Port (Port 1 \ Port 2 \ Port 3)	Network or user Ethernet port has been disabled by the user.
Login Via (Telnet, Web, Terminal)	LA-210 has been accessed via Telnet, Web or terminal.

Event	Description
Invalid Login Via (Telnet, Web, Terminal)	Invalid user name or password was detected during initialization of Telnet, Web or terminal control session.
IP X.X.X.X Assigned By Server X.X.X.X	IP address X.X.X.X has been assigned by DHCP server X.X.X.X.
IP X.X.X.X Is Released	IP address X.X.X.X has been released by LA-210.
Log File Recovered	Log file corruption has been detected and fixed at startup.
Connectivity Mismatch EVC X Off	No EVC ID or MEP ID mismatch has been detected on EVC X.
Connectivity Mismatch EVC X On	EVC ID or MEP ID mismatch has been detected on EVC X.
CC Failure EVC X Off	Continuity check on EVC X has failed.
CC Failure EVC X Off	Continuity check on EVC X has been restored.
Dropped Frames Exceeded Port X	Number of dropped frames exceeded configured threshold on port X.
Dropped Frames Dropped Below Port X	Number of dropped frames dropped below configured threshold on port X.
Undersized Frames Exceeded Port X	Number of undersized frames exceeded configured threshold on port X.
Undersized Frames Dropped Below Port X	Number of undersized frames dropped below configured threshold on port X.
Oversized Frames Exceeded Port X	Number of oversized frames exceeded configured threshold on port X.
Oversized Frames Dropped Below Port X	Number of oversized frames dropped below configured threshold on port X.
Fragmented Frames Exceeded Port X	Number of fragmented frames exceeded configured threshold on port X.
Fragmented Frames Dropped Below Port X	Number of fragmented frames dropped below configured threshold over port X.
Jabbers Exceeded Port X	Number of jabbers exceeded configured threshold on port X.
Jabbers Dropped Below Port X	Number of jabbers dropped below configured threshold on port X.
Frames Loss Ratio Exceeded Evc X Svc Y	Frames loss ratio exceeded configured threshold for service Y on EVC X.
Frames Loss Ratio Dropped Below Evc X Svc Y	Frames loss ratio dropped below configured threshold for service Y on EVC X.
Frames Above Delay Exceeded Evc X Svc Y	Number of frames above delay exceeded configured threshold for service Y on EVC X.
Frames Above Delay Dropped Below Evc X Svc Y	Number of frames above delay dropped below configured threshold for service Y on EVC X.
Frms Above Del Var Exceeded Evc X Svc Y	Frames above delay variation exceeded configured threshold for service Y on EVC X.
Frms Above Del Var Dropped Below Evc X	Frames above delay variation dropped below configured threshold

Event	Description
Svc Y	for service Y on EVC X.
Unavail Ratio Exceeded EVC X SVC Y	Unavailability ratio exceeded configured threshold for service Y on EVC X.
Unavail Ratio Dropped Below EVC X SVC Y	Unavailability ratio dropped below configured threshold for service Y on EVC X.
OAM (802.3ah) Remote Dying Gasp PortT X	Dying gasp indication has been received from the remote partner on OAM link on port X.
OAM (802.3ah) Connectivity Fail Port X On	OAM connectivity has been lost on port X.
OAM (802.3ah) Connectivity Fail Port X Off	OAM connectivity has been restored on port X.
OAM (802.3ah) Remote Link Fail Port X On	OAM connectivity failure has been received from the remote partner on OAM link on port X.
OAM (802.3ah) Remote Link Fail Port X Off	OAM connectivity recovery has been received from the remote partner on OAM link on port X.
OAM (802.3ah) Remote Critical Errors Port X On	Critical errors has been received from the remote partner on OAM link on port X.
OAM (802.3ah) Remote Critical Errors Port X Off	Critical error termination has been received from the remote partner on OAM link on port X.
OAM (802.3ah) Remote Loopback Port X On	Remote loopback activation has been received from the remote partner on OAM link on port X.
OAM (802.3ah) Remote Loopback Port X Off	Remote loopback deactivation has been received from the remote partner on OAM link on port X.

Clearing the History Log

You can clear the history log contained in the LA-210 Alarm Buffer. Selecting this entry will clear all the entries of the Alarm Buffer.

➤ **To clear all alarms in the Alarm Buffer:**

1. On the menu bar, click **Fault > Clear History Log**.

Figure 7-5. Clear History Log Dialog Box

2. Click <**OK**> to confirm clearing the Alarm Buffer.

   The History Log is cleared.

   In the History Log Alarm List, only alarms that occurred since the last clearing will be displayed.

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